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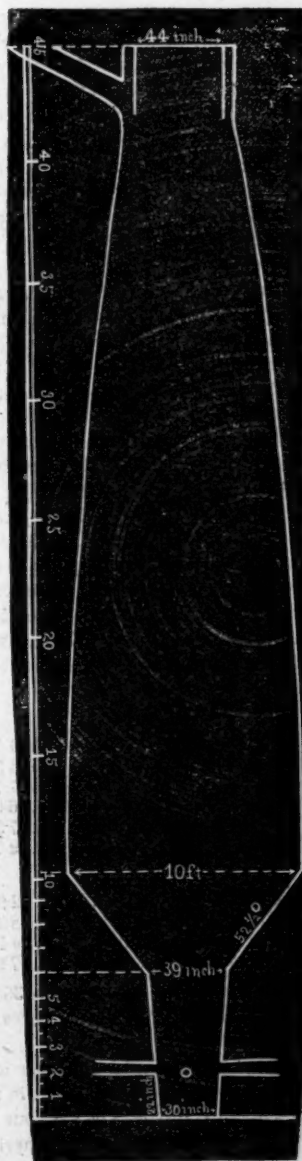
Iron Ores and the Iron Manufacture of the United States.

Continued from page 657.
NEW YORK

ST. LAWRENCE DISTRICT.

The principal establishment making use of the specular ores is the furnace at Rossie, ten miles from the St. Lawrence river, belonging to George Parish, Esq. Formerly there were two furnaces here, but in 1843 they were converted into one. This is a large stack 45 feet high, and 10 feet across the boshes, and is blown with the hot blast. The machinery is of the most perfect construction, and the water power on Indian river ample for the work. The accompanying outline represents the form of the furnace. The mines, distant 12 miles from the furnace, have been already described. The transportation of the ores is effected principally in the winter, at an expense not exceeding one dollar per ton. Mining the ore is estimated at the same price.—Their yield is at least 60 per cent., and consequently less than two tons are required to the ton of iron. The charcoal is prepared from hard wood, delivered

at the kilns near the furnace at a cost not exceeding one dollar per cord. Of these kilns there are nine,



holding about 60 cords each. The abundance of wood near the works will long ensure supplies of fuel at

the lowest rates. The flux is clay with a little sand.

In the furnace the ores work hard, but when the heat is once up they make iron fast. The blast is found to do best with the pressure of only nine-tenths of a pound to the square inch. I have not the size of the nozzles. The cinder is small in quantity and thin. The yield of the furnace is about ten tons a day, mostly of foundry iron; some No. 3 iron is made, but it is a poor quality of forge pig. The iron is carted two miles, and then put on board of steamboats for Buffalo and other ports; the cost of transportation varies from \$3 to \$4—probably averages \$3 50 per ton; but for five or six months in the year the navigation of the St. Lawrence is closed. Some of the iron is sold in Canada. The new railroad in progress to Ogdensburg creates a new demand for large supplies of castings, and when completed will afford new facilities of transportation.

From the resemblance of the ores to those of the Island of Elba, it is probable that such furnaces as are in use for smelting these, as at Follonica in Tuscany, would prove highly successful in St. Lawrence county. The remarkable workings of these furnaces have been particularly described in the numbers of this Journal for the month of May last. The furnaces of the Iron Mountain, Missouri, also make use of similar ores, and are constructed after the plan of the Tuscany furnaces. Though only seven feet across the boshes and twenty-seven feet high, they make as much iron as the Rossie furnace, which is as capacious again. The Missouri iron is beside good forge pig.

The furnace of Messrs. Skinner & Blish in Rossie, I am informed is supplied with ores from the Kearney and Sterling beds, three and five miles distant, and makes about 1800 tons of iron per annum.—The cost of ore is estimated at from \$2 75 to \$3 00 per ton.

The Fullerville furnace in Fowler is an old stack, and is run only a few months in the year. Professor Emmons states in his report, page 345, that good tough and soft bar iron has been made here from the specular ores. Quantity estimated at 600 tons per annum.

Of the Canton Falls furnace the only data I have are those comprised in the table on page 497.

The Brasher furnace, owned by Wm. H. Alexander, Esq., of Syracuse, according to data furnished me by Hon. J. G. Hopkins, makes from bog ores 800 tons of pig metal per annum, at the following estimate of cost:

Ore, 5 tons at 1 50.....	\$7 50
Coal, 200 bush. at 4 1/2.....	9 00
Labor.....	5 00
Repairs.....	1 00

\$22 50

Two forge fires in Brasher, owned by Isaac W. Skinner, Esq., make use of the same ores for the manufacture of bar iron, of which they produce about 100 tons per annum, at the following items of cost:

Ore, 8 tons.....	\$12 00
Coal, 500 bush.....	23 00
Labor.....	20 00
Repairs.....	2 00

\$56 00

The *Antwerp and Sterlingville furnaces* are both owned by James Sterling, Esq. The former was built in 1847. It makes use of the same ores as the Rossie furnace, being only five miles from the Parish bed. There is also within a mile of the furnace another bed of "Red Paint ore," as it is called, known as Weeks'. This is of shelly structure and pure quality. It is used mixed with equal quantities of the Parish ore. It has the advantage in cheapness, and is thought to melt more easily than the Parish ore. The furnace is run with cold blast, and makes more hard iron than the Rossie furnace.

It is esteemed sufficiently good for the manufacture of bars for car axles, for which purpose it is used at Rochester. Wood is obtained at similar cost to that at Rossie; but the furnace having no kilns, charcoal probably stands somewhat higher. The iron is hauled 16 miles to Sackett's Harbor, and there shipped.

The *Sterlingville furnace* is within eight or nine miles of Sackett's Harbor, and about sixteen miles from the Parish bed, and ten from Weeks'. These ores are drawn mostly in the winter at a cheap rate. The former ore, however, is not much used. The furnace is run by water power and with hot blast. It makes from three to four tons a day, principally foundry iron: a portion is run directly into castings; the remainder into pigs, which are re-melted in a foundry on the spot.

At *Carthage* there are two old furnaces, but only one is used. This is leased by Dr. Budd and Wm. Bones, Esq. It is situated on excellent water power and is run either with hot or cold blast. With the former it makes about four tons a day, and with the latter about four and a half tons. The ore is supplied principally from the Parish bed; bog ores were used some time ago, but are now exhausted. Perhaps no ores in the country are hauled so great a distance over common roads as those used by this furnace—the distance to the Parish bed being 24 miles. The expense of this transportation is \$3 per ton of ore. One ton and three quarters are required to the ton of iron. This item, including mining, is then about \$7, beside the cost of the ore in the bed. The furnace makes foundry iron only, all of which is sold to the foundries near by.

Of the *Scriba furnace* I have no details beside those included in the table of the New York furnaces, on page 497.

Several forge fires beside those mentioned are in operation in this county, but the amount of bar iron they produce is not large.

ONTARIO DISTRICT.

The district of iron ores, I have designated by the name of Ontario, is a narrow strip of territory a few miles south of Lake Ontario, and nearly parallel with its southern shore. Where the lake shore, however, trends towards the northeast near Oswego, the outcrop of the geological formation containing

the ores continues an easterly course including Oneida lake in its range; against which is its greatest width. Though the same formation may be traced parallel with the Mohawk river, and a few miles south of it, as far to the eastward as Sharon (south of Canajoharie), and westward to Niagara river, it appears to be only about Oneida lake, and thence to the Genesee river, that it is productive in iron ores in the State of New York. The formation is that group of red and variegated slates, and shales, called in the New York Reports the *Clinton group*, and in the Pennsylvania Reports, *Formation No. V*. Its geological position in the series of secondary stratified rocks is, generally described, above the Trenton limestone, and below the Niagara limestone, which is itself below the old red sandstone.—Like all the strata of this region these slates and shales have a general dip towards the south; but this is so slight, that seen at any one locality only, they generally appear to lie horizontally.

The ore is called in the New York Reports, *lenticular clay iron ore*. In Pennsylvania it is generally known as the *fossiliferous iron ore*. It is interstratified with the slates, generally in two beds or layers, one of which is about twenty feet above the other. In some instances in Oneida county three beds have been found; but in many places the ore is worked from only one. Its greatest thickness does not exceed three feet, and would probably not average over one foot. Though so thin a stratum, it is by no means expensive to mine, when it is found spreading over the country but a few feet below the surface. As its depth increases, however, it ceases to be followed. Maintaining its thickness and character with remarkable uniformity over large districts a few exposures afford sufficient data to determine with accuracy the number of tons in any number of acres; and the cost of extraction at any given depth is already pretty accurately ascertained by experience.

In composition the ore is a peroxide of iron, with a large but varying percentage of carbonate of lime and other earthy matters. Its proportion of iron is also very variable, as seen in the two analysis given below. According to a chemical examination made by Prof. J. C. Booth, of Philadelphia, of the same variety of ore found in Pennsylvania, an account of which is given in the 28th vol. of the Journal of the Franklin Institute, it would appear to contain a small percentage of titanate acid. The two following analyses are published in the State Mineralogical Report of Dr. Beck, p. 28. The one is of a specimen from Wolcott, Wayne county, the other of one from Rochester.

I.

Peroxide of iron.....	51.50
Carbonate of lime.....	24.50
Carbonate of Magnesia.....	7.75
Silica.....	6.00
Alumina.....	7.50
Moisture and loss.....	2.75

II.

Peroxide of iron.....	42.93
Carbonate of lime.....	28.33
Carbonate of Magnesia.....	10.40
Silica and alumina.....	17.66

The percentage of iron in the one is 36; in the other, 30. In Pennsylvania this ore varies from 30 to 58 per cent. of iron.

From its large proportion of calcareous matter, it is evidently an ore that must work freely in the blast furnace, and require mixtures of siliceous matters as fluxes, rather than limestone. Iron pyrites is of frequent occurrence scattered in the ore; and according to its quantity must serve to impair the

quality of the bar iron. In color and general appearance the ore is not much unlike some varieties of the peroxide, already described, of the St. Lawrence district, particularly when in a powdered state—like this staining whatever it comes in contact with, and being suitable for the manufacture of red paint. It has not, however, the hardness of the specular ore, and is of very different structure. This is what is called oolitic—made up of fine rounded grains like the roe of a fish. Specimens from the lower bed display this structure more particularly; but those from the upper are of coarser texture, and contain many fossil remains of shell fish, corals and encrinites. It is these which give it its name of fossiliferous ore in Pennsylvania. The iron made from it is found to be better adapted for foundry than for forge purposes, and it meets with a ready sale at the different foundries in the principal towns of this part of the country.

Charcoal is not expensive in this district, as one would suppose from the country having been so long settled. The forests of heavy hard wood timber are still very extensive; and as they are cleared off the fuel can be afforded at low rates in consequence of the increased value given the land for purposes of cultivation. The price of charcoal delivered at the furnaces varies from four dollars to six dollars per hundred bushels; and as yet there is no scarcity of it.

Fire stones for hearths and excellent building stones are obtained from the sandstone formations contiguous to the strata containing the ores.

The names of the furnaces using these ores have been given on page 497 of the Journal. Others have been in blast, of which I have no certain account, as in Sodus, Westmoreland, Franklin and Lennox.

Comtantia Furnace.—This is in Oswego county, on the shore of Oneida lake; it was built about 30 years since. The stack is 32 feet high and 9 feet across the boshes. These slope, like the boshes of some of the furnaces in the Lake Champlain district, at three angles of 60°, 55° and 50°. The hearth is five feet high. The furnace is run by water power with hot blast. The ores are from Clinton and Verona; those from the latter are considered more calcareous than those from the former. Obtained for the most part near the surface, they cost for mining about half a dollar per ton. The owner of the land receives twelve and a half cents, and thirty seven and a half cents are paid for transportation to the canal; thence to the furnace the charges are seventy-five cents more. It would be about a fair allowance to rate the ore at \$2 10 per ton at the furnace. Charcoal costs delivered from five to six cents per bushel. Freight on the iron to Syracuse is seventy-five cents.

The yield of the ore, as I am informed by Jonas Tower, Esq., who has charge of the furnace, is from 48 to 52 per cent. of pig metal; and the production per week has been from 16 to 28 tons a week, until by the use of his patent mode of grouting the flux, he has brought it up to from 33 to 40 tons per week. The quality is foundry iron only. It is taken to Syracuse and Utica and sold to the foundries for the manufacture of castings, bringing heretofore from \$28 to \$30 per ton.

With a consumption of 150 bushels of charcoal, the following will represent about the cost of production:

Ore, 2 tons at \$2 10.....	\$4 20
Charcoal, 150 bushels at 5 1/2 cts..	8 25
Flux, 25 cts., Labor \$2 50.....	2 75
Repairs, superintendence & int..	2 50

\$17 50

Taburg Furnace, in Oneida county is of similar character to the Constantia furnace, and makes use of the same varieties of ores, with about the same cost of materials.

Clinton Furnace, Wayne county, two miles from Lake Ontario; built in 1848; owned by Messrs. Bacon & Cheney. It is 35 feet 6 inches high, and 8 feet 9 inches across the boshes; these slope 55°. The hearth is 5 feet high. Tunnel head 2 feet in diameter. It is blown with hot blast through two twerers. The production is at the rate of about 2000 tons per annum of foundry iron. The ores, belonging to the company, are obtained near the furnace.

The bed averages about three feet thickness, and lies within three feet of the surface; it furnishes oolitic ore, not fossiliferous, which is used without being roasted. From the prevalence of sulphuret of iron in the ores of this formation, they would all seem to require this preparation for the furnace.—The expense of mining is only 33 cents per ton; and the whole expense of the ore delivered at the tunnel head is estimated at only 62½ cents per ton. Charcoal, a part of which is made in two kilns belonging to the furnace, costs delivered only four cents a bushel. The flux is sand and a little clay. The iron is hauled to Rochester, 18 miles distant, for \$2 50 per ton. Allowing two and a half tons of ore to the ton of iron, the following is an estimate of the cost of manufacture:

Ore, 2½ tons at 62½ cts. \$1 56
Charcoal, 150 bush. at 4 cts. 6 00
Flux, 25 cts., Labor, 2 50 3 75
Supt., repairs and interest. 2 50

\$12 81

This estimate is remarkable for the extremely low amount of its items. The locality possesses advantages rarely combined, enabling the company to furnish iron at as low a rate probably as any charcoal iron in the United States.

Ontario Furnace.—This is the old Ontario furnace, rebuilt in 1848 by Messrs. Titus & French of Rochester. It is a mile and a half from Lake Ontario, and a mile and a half from the Clinton furnace. It is 28 feet high, 8 feet bosh, with a hearth 5 feet 6 inches high, 2 feet square at bottom, and 29 inches at top. It makes five tons of foundry iron a day. Ore is from the Clinton furnace bed, a mile and a half distant, and from another bed near by; which is mentioned by Prof. Hall in the State Geological Report, as being three feet thick, and fifty feet above the level of Lake Ontario—the ore fossiliferous. The cost delivered is estimated at 75 cents a ton. Charcoal being rated at \$4, the cost of the ton of pig metal is not materially different from that of the Clinton furnace, the estimate of which is just given.

Wolcott Furnace, Wayne county, Messrs. Livingston & Hendricks proprietors. This is an old furnace, situated about four miles from the Clinton furnace, with whose ores it is supplied. It is run with water power and with hot blast. Ores estimated to cost from \$1 25 to \$1 50 per ton delivered. Charcoal of good quality \$4 per hundred bushels. The furnace makes about three and a half tons of iron a day. It uses the same weight of flux (which is loam) as of ore. This proportion, unless the ores are of unusual richness, would seem to bring down the per centage of iron in the whole solid materials employed, to a very low figure—except, indeed, the loam itself is highly ferruginous. The iron is hauled—a part of it five miles, and a part nine miles to the railroad, to be there transported to Geneva and Rochester.

H.

Southern and Western Agricultural Interests.

SKETCHES OF TEXAS.

Alluvial Prairie—Sugar District—Climate.—The agricultural importance of Texas is attracting much attention, and nowhere is the subject more interesting than in this city, which is to be the commercial entrepot of the products of that fertile region. The writer of this article having had the opportunity of making a personal examination of a considerable part of Texas, and of comparing its productiveness with that of other Southern States, is enabled to furnish some details that would doubtless be interesting to many. The sugar region is the low alluvial prairie extending along the coast of the Gulf from the Sabine to the Nueces river, and from the coast into the interior, a distance varying from thirty to one hundred miles. The whole of the prairie being, as is supposed, of alluvial formation, is, with the exception of a small proportion, less than the average in Mississippi and Louisiana, susceptible of cultivation, and some portions have a depth of soil and exuberance of fertility that is unsurpassed by the choicest lands to be found on the Mississippi river. The wooded bottoms on the rivers and small streams have the preference, from the fact that by frequent overflows the accretion of vegetable soil is greater than in the open prairie. Nothing, indeed, can exceed the beauty of the forests that skirt the rivers on both sides several miles in breadth, the magnolia, wild peach and cane, being intermingled in profusion, and furnishing evidence of an exhaustless fertility. Such especially is the character of the forests on the Trinity and Brazos. But although a discrimination is made in favor of these lands by most purchasers, so far as it respects the price, yet it is questionable whether the prairie is not, on the whole, more desirable for agriculture in the early settlement of the country. The depth of soil is sufficient—the expense of clearing off a heavy growth of timber is avoided—and the danger of health, which exists in every new country on first turning up the soil for cultivation, is much less. The lands in the vicinity of Galveston Bay have been found well adapted to the raising of sugar. On one plantation between the Bay and Trinity river, a secluded piece of ground in the open prairie, which had been cultivated on experiment, produced the last season two hogheads of sugar to the acre, as I was credibly informed. Kennedy states, in his History of Texas, that 3,500 lbs. of sugar to the acre had, within his personal knowledge, been raised on a sugar estate.

A statement was recently published in Galveston, showing the products, during the last season, of six sugar plantations in the neighborhood of the Brazos river, exhibiting an average of one and a half hogheads to the acre, estimating 1,000 lbs. to the hoghead; but the proportion in some of them was much greater. Indeed, the cultivation of sugar is yet in too imperfect a state to admit of an exact estimate of what the capacity of soil will be under a more improved system of agriculture, such as has been attained on the best plantations in Louisiana. It is a fair result, from all the statistics that I have seen, that under all the present advantages of sugar culture in Texas, the average production of the lands under cultivation is 1,800 lbs. to the acre—which I believe, is greater than the ordinary production of Louisiana estates.

The climate of this part of Texas has been supposed to be oppressively warm; but this is not the case. The range of the thermometer is higher than it is in this latitude, taking the whole season together; but the heat of summer is by no means so prostrating as it is here at the same temperature. Indeed, the summer months are considered in Texas as agreeable, and a residence there during July and August is recommended to invalids as being more salubrious than during winter. This is owing to the constant breeze which comes up from the south-east, and which is so bracing that exercise in the open prairie is not attended with the same dangerous consequences that it is in other parts of the south in the extreme heat of midsummer. Any one, whose habits are good, will find a sense of enjoyment in that climate hardly experienced elsewhere—an elasticity of feeling that incites to enterprise and makes life agreeable. But, in order to attain this, temperature is a requisite; and it is worthy of remark, that the vice of excessive drinking, which

formerly prevailed in Texas, has latterly abated under the influence of the Sons of Temperance and the better knowledge of the means of preserving health, and we may hope soon to see the same standard of respectability, in this respect, that we are accustomed to at the North.—*De Bow's Commercial Review.*

Ivory as an Article of Manufacture.

At a meeting of the West-Riding Geological and Polytechnic Society, Mr. Dalton read a paper on this subject. He said there were several sorts of ivory, differing from each other in regard to composition, durability and external appearance, and also in value. The principal sources from whence ivory was derived were from the western coast of Africa and Hindostan. Camaroo was generally considered the best, on account of its color and transparency. In some of the best tusks the transparency could be discovered even on the outside of the tusks. Gentlemen were apt to be deceived with regard to transparency, because the manufacturer could mislead them by making it transparent by a process of his own. But the finger of time would soon indicate the deception. It was as well not to insist on having the most transparent kind; for if they got the genuine article, though somewhat brown at first, it would eventually become white. The African was the kind of which the best cutlery was made; and though its degree of transparency was not so great as the Camaroo, it was sufficiently beautiful in its color and fineness of grain as to render it suitable for the best kind of cutlery. But there was a third description, called the Egyptian, which had lately been brought into this country, which was 15 per cent. lower than the Indian, but was very wasteful in working. Mr. Dalton next gave a description of the specific gravity of the different kinds of ivory he had referred to. He had been furnished with an analysis to show the relative amount of animal matter in the three principal varieties of ivory. The African showed a proportion of animal over earthy matter of 101 to 100; the Indian, 76 to 100; and the Egyptian, 70 to 100. Thus, though the composition was much alike, yet there were those differences between the animal and earthy matter. He also showed the difference as to the quantity of dust used in the manufacture of gelatine. With respect to the increase in the manufacture of ivory, he said that it was now within the memory of man that there were not more than 15 per cent. workers of ivory in Sheffield; but now were upwards of 40 per cent. Forty years ago, there was only one dealer of ivory in Sheffield; at present there were five or six. The value of the animal consumption in Sheffield was about £30,000, and about 500 persons were employed in working it up for trade. The number of tusks to make up the weight consumed in Sheffield, about 180 tons was 45,000, the average weight of each being only 9 lbs. Many weighed from 60 to 100 lbs., so that some must be very small indeed. According to this the number of elephants killed every year was 22,500; but supposing that some tusks were cast and some animals died, it might be fairly estimated that 18,000 were killed for the purpose. This was a matter which was not generally known, it being a prevalent opinion that the tusks used for ivory were such as were cast by the elephants when alive.

—*Min. Jour.*

Ship Building in the West.

The Cincinnati Atlas, of the 21st ult., has a summary of all the steamboats built in the United States from 1824 to 1848, inclusive. The entire number is estimated at 2,310. The present rate of steamboat building is about 200 per annum, of which more than two-thirds are built upon the lakes and western rivers, having no connection with the tide waters of the ocean. The official returns show for 1848 the amount of ship building and tonnage on the lakes and western rivers:

	No.	Tonnage.
Lake Ontario.....	35	3,727
Lake Erie.....	68	12,194
Lake Huron and Michigan.....	30	5,301
Mississippi river.....	38	6,266
Ohio river.....	150	25,253
Cumberland river.....	1	51
Total.....	302	52,688

Of the above there were—ships, 2; brigs, 13; schooners, 62; and steamers 130—making a total of 207. The total of the tonnage on the lakes and western rivers is about one-sixth of the whole of the tonnage of the United States, with an annual increase in a much larger proportion than on the tide water.

The Great Dam across the Connecticut River.

The event anticipated with so much interest, by all in this vicinity, and by multitudes in distant portions of this and the adjoining States, transpired yesterday. The dam was closed at twenty-two minutes before one o'clock in the afternoon. The prospect of a rain, and the possibility of a rise in the river, determined the agent of the company and the engineer engaged in its construction, upon shutting the gates without further delay. Notwithstanding the brief notice given of this decision, there were thousands upon the ground, on both sides of the river. In the course of the morning nearly a thousand eager witnesses arrived from the north, and express trains immediately commenced running from Springfield and Northampton, every one of which went packed to the fullest extent. Yet had the occurrence taken place on Tuesday, as was generally anticipated, the number must have been doubled. There were few ladies on the ground, owing, doubtless, to the state of the weather.

There were forty-four gates, each eighteen feet long, and sixteen feet wide. Alternate sections of these were closed at a given signal, by means of levers. They went down with an almost simultaneous plunge. Very soon the others followed, in the same order, and the Connecticut river was declared dammed. The water rose more slowly than was anticipated. At half past two the water was rising at the rate of one foot in forty minutes.

Almost immediately after the closing of the gates, the rocky bed of the river below was left dry, and the workmen on the dam with many of the spectators rushed in to make discoveries. Many of the tools lost in the water, while constructing the dam, were found, and some that were quite valuable.—The fish, eels, etc. that were left without a sufficient covering of the watery element, were taken out by the hand in quantities. The man who fell off the dam a few days ago, and who so narrowly escaped death, among the rocks and waves below, explored the route of his former journey with evident satisfaction, and doubtless regarded himself the hero of the day.

The dam is upon an average thirty feet in height from the bed of the river. In some places more and in some places less, according to the inequalities of the river's bed. A rough calculation of the amount of lateral pressure which the dam will be obliged to sustain gives nearly twenty-nine million pounds while the vertical pressure is about three times that amount. There have been used in its construction nearly four million feet of timber. In the construction of the abutment, guard gates and lock wall, at the head of the canal, there have been used 10,000 perches of stone. The measure is by what is termed the "railroad perch," each perch containing twenty-five cubic feet. The dam is 800 feet long, and the slope from the top to the bed of the river is 90 feet. The dam leaks a little, and but a little—not so much as the one which went of last year.—This is considered no fault, as a sufficient leak is necessary to keep all the timbers of the dam bathed in water, to prevent rot. If it does not leak enough for this, it will be made to leak more, by boring holes through it.

The magnitude of the work, and the immense results which will ultimately flow from it, constitute the peculiar charm which is attached to it, by many minds. The structure, however, considered alone, is a legitimate object of interest and admiration. There has not been a stone placed nor a timber laid, but what has been adjusted upon scientific principles, and the faithful and critical manner in which it has been reared to its completion, is, and will be, a lasting credit to the engineer, Mr. Anderson, and the contractors and mechanics under him.

At 7 o'clock last evening, the water lacked 10 feet of running over the dam, and was filling very slowly. At that time the water had fallen about 5 feet in the river at Cabotville, and opposite Springfield

between three and four feet, with scarcely a perceptible current.

POSTSCRIPT.—The water over—all right!—At six minutes before ten o'clock, last night, the dam was filled, and the water went over in good style. It began first on the east side of the dam, but was followed very rapidly throughout the entire length.—From the time the gates were closed till the water went over the dam, was 9 hours and 16 minutes.

YORK AND CUMBERLAND RAILROAD.

We find in the York Republican the recent annual Report of the President and Directors of this Company. It presents the following succinct and very satisfactory statement of the condition and progress of this important work:

The termination of the first corporate year of this Company being closed, in compliance with our charter requiring "the President and Directors of the preceding year to make a statement of the condition of the Company," this Board respectfully reports, that altho' the Company was organized on the 22d of September last, yet, that in consequence of the limit fixed by common agreement to our action, by a refusal to proceed until \$400,000 were subscribed, which point was not arrived at until nearly six months had elapsed, in consequence of which, we have had an actual corporate existence but for about half a year. In that period we have contracted for the construction of our Road, as already in a previous Report was stated to the stockholders, for \$525,000, of which sum, \$100,000 is payable in the stock of this Company. The work has since been re-let by the contractors, with the exception of the tenth section, which being very light work, has not been pressed. A large portion of the grading, which consisted of side cutting, has been executed, and some work done on the through cuts. The timber for the Bridges has been contracted for; some portions of the Masonry progressing, but owing to the extraordinary unhealthfulness of the country for some weeks past, possibly owing to an unusually severe and protracted drought, it has become difficult to maintain a sufficient force upon the line to carry on the work with energy. It is hoped, however, that a few weeks more will find the healthfulness of the country restored by the salutary action of approaching Equinoctial gales and that our labors will not be interrupted hereafter by the prevalence of any general sickness, so that a sufficient force may be maintained upon the ground to insure the earliest possible completion of the work.

The books of the Treasurer exhibit as paid in upwards of \$120,000, out of which has been paid for engineering expenses \$6,925.40; for damages \$39,780.30; for incidental expenses, including \$1,500 paid to Mr. Keener, \$2,067.22; for salaries \$1,999.97; for construction \$28,313; and for purchase of real estate \$3,075.70; leaving a balance in hand of \$36,835.41. The purchase of this real estate, it had as well be remarked here, was made to avoid excessive damages, and reserving the ground for our track, will be resold as speedily as practicable, and it is believed with a considerable saving to the Company. The chief contractors, upon whom falls the duty of the purchasing the rails, have reported to us a contract with Bayley, Bios & Co., of England, a manufacturing establishment of the best repute in Europe, for the requisite quantity of rails, at the low rate of \$23.60 per ton there, and costing a fraction less than \$40 here. These rails are to be 61 pounds to the yard, of the U or bridge pattern, of the best material, and subject to the inspection of our Engineer on their arrival and subject to rejection if not approved of and we have no reason to suppose that their quality will not equal that of any American rail.

This board was exceedingly anxious to adopt American Iron, for our common country's sake, but after every effort had been made to secure an American contract, and even after our contractors had offered to lose a dollar or two per ton in favor of American Iron, when the Board satisfactorily ascertained that would make a difference of over Twenty Thousand dollars to the Contractors, we felt ourselves obliged to yield the field to English Iron. These rails will arrive in this country between this and March, and be ready to commence laying with the opening of the Spring. Our solicitude about the quality of our Iron had prompted the inspections, both in England and this country, which are arranged for, by which we deem ourselves sufficiently guarded, whilst the experience of the Baltimore and Susquehanna Railroad Company, which has been running on English rails for sixteen years, almost twenty five per cent. lighter than our own, yet with entire satisfaction, induces us to say that we feel assured that we shall secure as good an article as can be manufactured at home or abroad.

So far, therefore we have met with no untoward or seriously embarrassing difficulties, and we sincerely hope before the close of another year to invite our Stockholders to witness a full and complete opening of

the Road. In the meanwhile, it should not be forgotten that renewed efforts must be made to secure a sale of sufficient stock to complete this work without debt, and to do that will require further subscriptions to the amount of sixty or eighty thousand dollars. The Central or Pennsylvania Railroad will, in thirty days more, be opened for eighty miles beyond our terminus, and if we wish to secure an early and advantageous opening to the North and West, we must not flag when so near the end our labors. In the hope that at the right time the right spirit shall be found in our stockholders, and that we shall not be required to labor wearily and uncheered on our way, we respectfully submit to their consideration this Report.

By order of the Board,

THO. C. HAMBLY, President.

York, September, 1849.

Novelty Iron Works, October 24, 1849.

MR. EDITOR: I have just seen your number of 20th instant, in which I find an article from C. E. Detmold, Esq., which commences with "The apparent anomaly of the greater density of fluid cast iron over the same iron when in a solid state, referred to * * * is fully susceptible of explanation." As he has merely iterated Mushet's theory, without noticing any of the difficulties shown to be connected with it in my former article, and as he seems to have been himself very much misled, I shall endeavor to show his mistakes, in the hope that he may in a future number explain the anomaly with greater satisfaction.

He asserts with Mushet that "iron in a fluid state attains its greatest density, and in that state of fusion solid iron will float upon it, but not until, by the heat of the melted iron, the solid piece has been greatly expanded; cold iron will sink at first."

Mr. Detmold, in this statement, has not only made the iron at its greatest density refuse to float its solid at a less density, but he has asserted that which a few experiments will convince him is a mistake.—The only cause of solid iron sinking in liquid iron is the momentum which the piece receives in the act of immersion, this it immediately recovers and floats about 1-130th of its weight above the liquid. A piece of solid iron of sufficient bulk to secure it from immediate expansion, carefully lowered into a ladle of liquid iron, will not sink below the surface.

He says, "at the moment of solidification of fluid cast iron it assumes a crystalline structure and therefore expands, the same as water when it freezes into ice," thereby assuming one of the very points at issue. I think I have fully shown that it does not expand, and that the analogy of ice cannot be sustained.

But even admitting that it *does* expand at this point, the anomaly still exists, and the analogy ceases; for after this, iron contracts until it becomes three per cent. smaller than when it was liquid (unless it can be shown that liquid iron never fills a mould in which it is deposited) and yet it floats upon the liquid.

He further says, "it is just this quality that makes crude iron so applicable and valuable for castings; inasmuch as by this momentary expansion at the instant of solidification, it fills all the forms and impressions of the mould." This is a mere assumption, for which direct proof is beyond a possibility, while that of a presumptive character is all against it. It is a fact as old as the art of moulding, that if a moulder has a piece of casting to make, having minute members, he will select his iron when at the highest temperature, or greatest liquidity; well knowing that if he poured in the metal at a medium temperature he might look in vain for the momentary expansion at crystallization to fill that which the sluggish fluid refused to penetrate.

My only object in this discussion is to obtain an elucidation of this difficult subject, and trust t

your columns may yet be the medium for that end.
Yours, etc., N. M. STRATTON.

North Carolina.

Wilmington and Raleigh Railroad.—We have intended, for some time past, to lay before our readers, an abstract of the last report of the directors of this road, which is destined soon to acquire a much greater importance from being a great connecting link between the northern and southern railways. The report was made on the 10th of November last, and presents the following state of the working of the road for the year prior to that date:—

The receipts during the year have been as follows, viz:

From Through Passengers	\$113,078 22
Way " "	53,092 04
" Steamboat, freight, &c.	12,466 63
" Railroad " "	51,534 51
" Transportation of mail, Rents, &c.	77,344 99
" Sale of old iron and copper	9,943 31
	\$317,459 70

The EXPENDITURES during the same period have been.....\$238,133 79
Showing a balance of.....\$79,325 79

Of this balance, there has been applied to the pay't. of interest, on the debt of the company, the sum of \$35,909 63 \$35,909 63

Leaving as the net profit realized during the year....\$43,416 11
Of which amount there has been applied to purchase new iron rail, &c. 37,195 07

During the past year the operations of the company have been carried on with uniform regularity—our trains have run with but few accidents, and our boats have performed their trips successfully. We have progressed in improving the road bed, and in repairing the bridges and trestle work. It is true that much yet remains to be done, but by pursuing a uniform system of repairs, the road will be continually improving, and eventually rendered nearly perfect; at least so far as the road way is concerned.

It will be seen by a reference to the foregoing statement of the accounts, that a large sum has been expended for new iron. This was found to be absolutely necessary to maintain the road in safe running order, for without this outlay, the operations of the company must have necessarily been greatly embarrassed, if not entirely suspended; as we could not have continued to run our trains over it with regularity or even with safety. Being satisfied that it was indispensably necessary to the operations of the company, if not to its very existence, that the road should be preserved in good condition, your board has applied to the purchase of new iron, all the means at their disposal, not required for the necessary current expenses of the company; and being further satisfied that it was false economy to continue the use of the light bar, first laid on our road, and that permanence and stability could only be hoped for, by adopting a heavy rail in its stead, they have not hesitated to substitute the one for the other.

We copy the following for the purpose of calling to it the particular attention of such companies that contemplate laying down the flat bar. They will see in this report what they will experience upon their own roads, and they will do well to avoid the inconveniences under which this road is laboring by using the heavy rail in the outset:—

It is the opinion of the most eminent engineers of our country, that it is impossible for a road to be profitable with the light flat iron rail; and the statistics of the railroads in our country, with but few exceptions, fully confirm this opinion. When we compare the expenses of road repairs, and the ex-

pense of locomotive, coach and car repairs, on roads using the light strap rail, with the like expenses on those having a heavy rail, the truth of this opinion is evident.

We find the expenses of the road repairs where the heavy rail is used, varying from 120 to \$300 per annum on northern roads. But as the damage from frost in winter on these roads, has to be estimated to arrive at a true comparison of the expenses incident to the different forms of rail, we will for the purpose of instituting such comparison, take the road from Branchville to Columbia in South Carolina—it being a southern road, and not differing to any great extent from our own, in the amount of transportation.

By a reference to the report of the board of directors of the South Carolina railroad company for 1847, we find that "the maintenance of way on the Columbia road constructed on cross ties, with a T rail of 57 lbs. to the yard (though the timber of a considerable portion of the lower section had to be renewed) did not exceed \$160 to the mile." Now, the expenses of maintenance of way on our road during the year ending October, 1847; was equal to \$510 per mile, and during this year, (if we include the cost of the new iron) \$624 per mile; or about \$400 per mile exclusive of the cost of iron.—Had we the heavy rail, and assuming the expense of repairs to be the same as on the South Carolina Road, viz, \$160 per mile on our road of 162 miles, the whole cost of maintenance of way would be \$25,920, and this sum being deducted from the cost of our present road repairs, as shown per statement preceding, viz: \$101,172 11 gives us a difference in favor of the heavy iron of \$75,252 11. To which add at least one third of the expense of repairs of locomotives and cars, as exhibited in foregoing statement, and we have the sum of \$86,252 11, which would be saved to the company annually by the use of the heavy rail instead of the present light flat rail.

This may appear to be a large difference, yet it is sustained by facts. In addition to which, the heavy iron rail, preserves an uniformly regular surface which, with its greatly increased strength and stability, while it gives safety and security to the traveller, insures certainty and regularity in the work of the locomotive, with an ability to carry over it, fully one third more than over the rail now used by us.

The cost of relaying our road (162 miles) with an iron rail of 52 lbs. to the yard, at the present price of iron, would be about \$600,000; from which deduct the value of the old iron about \$4,000, and we have the sum of \$516,000. The interest on this sum at 6 per cent. per annum, would be \$30,960 00, which being deducted from \$86,252 11—the difference in the expense of the two kinds of rail as before ascertained, and we should make a saving annually of \$55,252 11—a sum nearly double the interest of the cost of the heavy iron. To this add the great additional facilities which such a road would give to their transportation, and it must be manifest to any one who examines the subject, that true economy of the company would be to substitute the heavy rail.

During the past summer, a heavy rail weighing 52 lbs. to the yard has been purchased for the purpose of relaying the whole track, thus giving the road capacity equal to any in the country. The great obstacle to the prosperity of the road has been the want of a connection with the roads of South Carolina and Georgia. This is soon to be remedied by the construction of the Wilmington and Manchester road. A continuous line of railway will then exist from Maine to the navigable waters of the Gulf of Mexico, and passengers who now for the want of such connection take the steamers from New York for the south will generally take the land route. To a person looking at a map, the route through North Carolina would strike him as one of the most important in the country; and we see no reason why it should not do a profitable business.

The Directors of the road are—

E. B. Dudley, Jacksonville, Onslow County,

James S. Battle, Nashville, Nash County,
James Griswold, Goldsboro', Wayne County.
A. G. Deroett, Jr., Wilmington, N. C.
P. K. Dickinson, "
Gilbert Potter, "
James T. Miller, "
Oscar G. Parsley, "
Wm. A. Wright, "
Edwd. P. Hall, "
President, Gen. Alex. McRae.
Treasurer, James S. Green.

Ohio.

Cleveland and Pittsburgh Railroad.—At the annual meeting of the Cleveland and Pittsburgh railroad company, held at Ravenna on the 15th inst., the following gentlemen were elected directors for the ensuing year:

Cleveland—Zalmon Fitch, Ellery G. Williams, Henry W. Clarke.
Hudson—Henry N. Day, James Butler.
Ravenna—Cyrus Prentiss, John B. King.
Salineville—James Turner.
Wellsville—James Stewart, John S. McIntosh, Duncan McDonald.
Pittsburgh—Charles Knapp, Jr.

The following officers were elected by the board: Cyrus Prentiss, President. Samuel Foljambe, Secretary. William Wadsworth, General Treasurer. William H. Stanley, Local Treasurer, Cleveland.

John S. McIntosh, Local Treasurer, Wellsville.

This company is progressing. The work has been commenced at Bedford, at the Yellow Creek Summit, and several other important points. The force is being increased every week. The determination is, to push the work with vigor.

South Carolina.

Charlotte and South Carolina Railroad.—At a recent meeting of the stockholders of this company at Winnsboro', on the 10th instant, the Chief Engineer made a very encouraging report, stating that the road was progressing finely, and would be completed by next summer.

Officers for the ensuing year were nominated.

Mr. Scott of Columbia, offered the following resolution:

Resolved, That the President and directors of this company be requested to prohibit the running of the cars on this road on the Sabbath day, when the same or any part thereof may be concluded. which, on motion of Dr. Fox, was laid over until the next annual meeting of stockholders.

This road, as we understand it, is to run from Charlotte, in North Carolina, to Columbia, in South Carolina.

Sale of a Railroad.

Yesterday at noon, a sequestrator, under a special act of the legislature, sold at the Exchange in this city, the Williamsport and Elmira railroad, in Lycoming county, in this state, valued at \$7000,000, to Archibald Robertson, for \$1,000! Should the purchaser fail to complete the road, so as to connect with the New York and Erie road, within 5 years, the stockholders resume the franchises of the corporation by paying back the amount expended by the purchasers.

It is further one of the conditions of the act under which the road is sold that none of its materials shall be removed, nor the line of the road used for any other purpose than a railroad.

Twenty-five miles of the road, from Williamsport to Ralston, are finished, and locomotives are running on it daily.

The sale was ordered on the complaint of creditors, representing more than three-fourths of the liens, declaring that the annual receipts are insufficient to defray expenses, keep the road in repair, and pay interest on the debts due by the company. —Philadelphia Ledger.

Railway Share List.

ON A PAR OF \$100 ACCORDING TO THE LATEST SALES.—CORRECTED EVERY WEDNESDAY.

NAME OF COMPANY.	Length of line.	Length of branches.	Miles finished.	Cost of road and equip-ment.	Cost per mile.	Capital stock paid in.	Debts more than sur-plus.	Ruling grade.	Earnings 1848.	Expenses 1848.	Net earnings 1848.	Rate of divid-identin 1848.	Price of shares.	Remarks.
Atlantic and St. Lawrence	146	...	47	1,405,476	2992	864,914	460,562	35	...	...	...	...	78 a 81	
Androscoggin & Kenneb.	55	...	26	In progress	...	...	...	...	...	...	...	...	...
Albany and Schenectady.	167	...	167	\$1,606,196	100,000	...	...	...	...	...	...	1 5-9	82	
Auburn and Rochester...	78	...	78	2,644,520	34,000	...	...	...	175,922	...	...	8	86	
Auburn and Syracuse...	26	...	26	1,125,886	43,300	...	...	...	454,721	...	...	2 9-10	77½	
Attica and Buffalo...	31½	...	31½	821,313	26,000	...	...	...	172,185	...	...	4½	...	
Alleghany Portage...	36	...	36	...	...	...	...	...	150,959	...	...	...	...	Leas'd to Western railroad.
Albany and W. Stockb...	38½	...	38½	1,924,701	50,000	...	...	...	...	...	...	...	...
Annapolis and Elkriddle.	21	...	21	...	...	...	...	...	...	...	...	...	...
Bangor and Oldtown...	111	...	111	...	...	...	...	...	...	...	...	...	...
Boston and Lowell...	25½	11	27½	2,013,687	73,200	1,800,000	...	10 up, 30 down.	461,339	268,707	192,631	8	116 a 147	
Boston and Maine...	74½	5	79½	3,571,832	45,000	3,249,804	249,715	47½	511,627	264,534	247,893	8½	104½	
Boston and Worcester...	44½	22	66½	4,960,000	74,700	4,500,000	460,000	40	716,284	406,303	310,080	8½	99½	
Boston and Providence...	41	6½	47½	3,031,106	63,800	2,893,300	26,878	37½	354,375	183,361	170,013	6½	91	
Bost., Concord and Mont.	90	...	38	In progress	...	...	...	...	...	...	...	...	82 a 85	
Berkshire...	21	...	21	600,000	28,500	...	...	...	...	...	...	7	...	
Buffalo and Niagara...	22	...	22	250,396	11,500	...	...	...	60,014	...	...	6 1-3	...	
Buffalo and Black Rock.	3	...	3	...	...	...	...	...	...	...	...	...	...
Baltimore and Susqueh'a.	36	...	36	...	...	...	...	...	...	...	...	...	...
Beaver Meadow...	26	...	26	...	...	...	...	...	...	...	...	...	...
Buck Mountain...	...	...	4	...	...	...	...	...	...	...	...	...	...
Baltimore and Ohio...	...	...	178	...	...	...	...	...	...	...	...	...	...
Washington Branch.	...	...	31	13,136,940	61,900	...	...	...	1,468,828	805,530	663,198	...	43½ a 44	
Frederick Branch...	...	...	3	...	...	...	...	...	...	...	...	...	...
Calais and Baring...	3	...	3	...	...	...	...	...	...	...	...	...	...
Concord...	34	...	34	...	...	1,350,000	...	...	318,257	179,872	138,385	10	121	
Cheshire...	54	...	54	2,584,143	48,000	1,453,379	1,140,764	60	...	...	...	...	67 a 67½	
Connecticut and Passump.	115	...	40	1,161,669	29,000	980,090	458,569	26	...	...	...	...	78	
Connecticut River...	50	2	52	1,588,184	30,500	1,234,970	426,013	32	45,652	23,724	421,938	2	93 a 94	
Cape Cod Branch...	28	...	28	60,000	21,400	343,000	257,000	40	...	...	...	...	62	
Corning and Blossburgh.	...	...	40	...	...	...	...	...	18,069	...	...	...	...
Cayuga and Susquehanna	29	...	29	...	...	...	...	...	...	...	...	...	...
Camden and Amboy...	61	...	61	...	...	...	...	...	...	...	...	...	...
Trenton Branch...	...	...	6½	3,200,000	33,000	...	...	...	...	...	...	...	140 a 142	
New Brunswick Br...	29	...	96½	...	...	...	...	...	...	...	...	...	...
Columbia...	82	...	82	...	...	...	...	...	...	...	...	...	...
Camden and Woodbury...	9	...	9	...	...	...	...	...	...	...	...	...	...
Cumberland Valley...	...	...	52	...	...	...	...	...	...	...	...	...	...
Carbondale & Honesdale.	26	...	26	...	...	...	...	...	...	...	...	...	...
Chesterfield...	12	...	12	150,000	13,500	...	...	...	...	...	...	...	...
City Point...	92	...	9½	118,060	15,919	...	...	70	...	...	...	...	...
Central of Georgia...	191	...	191	3,222,289	16,800	...	...	30	516,252	266,450	250,226	...	80	
Central of New Jersey...	63	...	36	...	...	...	...	...	...	...	...	...	...
Dorchester and Milton...	31	...	3½	114,224	35,100	72,990	41,234	39	...	...	...	...	74	
Detroit and Pontiac...	25	...	25	...	...	...	...	...	...	...	...	...	...
Eastern...	54	19½	73½	...	...	...	...	40	...	...	...	...	...
Essex (Salem to Law.)...	22½	...	22½	421,574	18,700	263,746	160,958	55	...	...	...	8	100½	
Erie and Kalamazoo...	33	...	33	...	...	...	...	...	...	...	...	...	...
Fall River...	42	...	42	1,145,982	27,300	1,050,000	83,177	45	184,344	109,390	74,953	7½	85	
Fitchburgh...	49½	6½	56	2,945,630	52,300	2,735,910	67,504	...	486,265	286,046	200,219	8½	108½	
Franklin...	...	...	22	...	...	...	...	...	...	...	...	...	...
Greenville and Roanoke.	21	...	21	283,917	13,500	200,000	400	96	309,82	200,34	10,949	2½	40	
Germantown Branch...	6	...	6	...	...	...	...	...	...	...	...	...	...
Gaston and Raleigh...	96	...	96	...	...	...	...	...	...	...	...	...	...
Georgia (Augusta to At'a)	171	...	...	...	...	...	...	40	477,052	267,173	209,879	...	121	
Athens Branch...	39	210	...	...	...	...	...	...	...	...	...	...	...
Harrisburg and Lancaster	37	...	37	1,183,257	31,979	609,550	573,707	49	121,350	37,386	83,963	6	96 a 97	
Hartford and New Haven	62	...	62	...	...	...	...	17	...	...	...	...	107	
Housatonic...	74	...	74	...	...	...	...	...	...	...	...	...	85	
Hudson and Berkshire...	31½	...	31½	818,983	26,500	...	...	...	...	...	...	...	...
Hazleton and Lehigh...	10	...	10	...	...	...	...	...	...	...	...	...	...
Jackson and Brandon...	13	...	13	...	...	...	...	...	...	...	...	...	...
Lexington and W. Camb.	61	...	6½	252,680	38,900	...	...	55	...	...	...	...	...
Lowell and Lawrence...	12½	...	12½	283,248	22,650	...	...	45	...	...	...	...	85	
Long Island...	98½	...	98½	2,173,646	22,100	...	...	...	...	...	...	...	17	
Lockport and Niagara...	23	...	23	221,000	9,700	...	...	...	...	...	...	...	...
Lewiston...	31	...	3½	33,673	10,300	...	...	...	...	...	...	...	...
Lykens Valley...	16	...	16	...	...	...	...	...	...	...	...	...	...
Little Schuylkill...	23	...	23	...	...	...	...	...	...	...	...	...	...
Louisa...	50	...	50	474,137	9,482	...	...	...	...	...	...	...	...
Lexington and Frankfort.	29	...	29	450,000	15,600	300,000	...	61	50,000	30,000	10,000	...	82 a 85	
Little Miami...	84	...	84	1,513,402	18,000	...	...	...	...	...	...	...	...
Machiasport...	8	...	8	...	...	...	...	...	...	...	...	...	...
Morris and Essex...	...	...	45	...	...	...	...	80	...	...	...	...	100	
Mauch Chunk and R. Run	36	...	36	...	...	...	...	...	...	...	...	...	...
Mine Hill & Sch. Haven.	25	...	25	...	...	...	...	...	...	...	...	...	136	
Mount Carbon...	7	...	7	...	...	...	...	...	...	...	...	...	...
Mt. Carbon & Pt. Carbon	2½	...	2½	...	...	...	...	...	...	...	...	...	...
Mill Creek...	6	...	6	...	...	...	...	...	...	...	...	...	...
Montgomery & W. Point	67	...	67	...	...	...	...	...	...	...	...	...	...

ON A PAR OF \$100 ACCORDING TO THE LATEST SALES.—CORRECTED EVERY WEDNESDAY.

NAME OF COMPANY.	Length of line.	Length of branches.	Miles finished.	Cost of road and equipment.	Cost per mile.	Capital stock paid in.	Debts more than surplus.	Rating grade.	Earnings 1848.	Expenses 1848.	Net earnings 1848.	Rate of dividend in 1848.	Price of shares.	Remarks.
Madison and Indianapolis	86		86											
Mad River and Lake Erie	102		102										112	
Mansfield and Sandusky.			56	\$1,106,121	19,700									
Michigan Central			221											
Michigan Southern			70										81	
Tecumseh Branch.	10													
Macon and Western.		101		328,091	6,218			30	140,970	63,243	78,722		48a48	
Mississippi		30												
Nashua and Lowell.		14		525,063	36,200	525,000		13	169,187	109,599	59,588	10		
Northern (Ogdensburg)		25		In progress.										
" (Concord to Leb'n.)	69			2,762,500	34,000		129,975	50	408,455	241,370	167,277		64	
Bristol Branch	12		81										105	
N. Bedford and Taunton.		20		499,065	24,998	400,000		40	136,151	96,220	39,225	6		
Norfolk County.		26		621,488	23,900	414,256		35					30a33	
N.Y. & N. Haven (14 mls.	Har	62											93	
New Haven Canal		28												
Norwich and Worcester.	59	7	66	2,187,829	33,100			32	218,073	170,297			36	
New York and Harlem		80		3,579,567	44,600								50	
New York and Erie		200											61	
New Jersey		29											107	
Newcastle & Frenchtown		17												
N. Orleans and Carrollton		5												
Old Colony	37	7	45	2,080,903	46,200	1,601,415	683,648	40	227,350	139,592	87,757	6	77	
Oswego and Syracuse.		41												
Portland, Ports. and Saco.	51		51	1,350,000	26,400									
Peterboro' and Shirley	12		12	208,311	17,300								98	
Pittsfield and N. Adams.	18		18	447,755	24,000									
Providence and Worcester	43		43	1,873,895	43,000		573,058	66	193,844	83,889	109,954		82	
Paterson and Hudson R.	16		16					26					110a111	
Philadelphia and Trenton	28		28										130a140	
Philad. Wilm. and Balt.	97		97	6,173,851	66,000				638,142	382,608		10	55	
Philadelphia City	6		6											
Philad. Germ. and Nor.	17		17											
Philadelphia and Reading	93		93											
Penn Township	2		2										33	
Petersburg	59		59	946,361	16,040				163,092	87,131				
Ponchartrain	4		4											
Pt. Hud., Jack. and Clint.	28		28											
Rensselaer and Saratoga.	25		25	661,910	26,400									
Ramapo and Patterson.	15													
Rich. Fred. and Potomac.	75		75	1,474,004	19,459								80	
Richmond and Petersburg	22		22	877,494	39,886				206,858	100,568				
Sullivan	28		28											
South Shore	11		11	255,748	22,200	135,935	128,075	35						
Stony Brook	13		13	246,659	19,000	216,829	29,189	40					33	
Stonington	50		50											
Saratoga and Washington	40		40	948,372	23,700								52	
Syracuse and Utica.	53		53	1,968,036	37,060									
Schenectady and Troy	20		20	659,668	32,100				677,671				120a121	
Saratoga and Schenectady	22		22	331,036	15,000				47,025					
Summit	2		2						57,018					
Schuylkill Valley.	14		14											
Shamokin	22		22											
Swatara	4		4											
Seaboard and Roanoke.		76		1,519,140	20,460									
S. Carolina Main Stem	136													
Columbia Branch.	68	242		5,943,678	24,500									
Camden Branch.	37								800,073	308,802	401,271			
Sangamon and Morgan.	56		26											
Taunton Branch.		11		305,085	27,600	250,000		35	108,101	90,485	17,615			
Tonawanda	43		43	974,865	22,400				218,301					
Troy and Greenbush.	6		6	273,625	45,900				60,055					
Tuckahoe & James River	4		4	69,322	14,999								70	
Tallahassee and Port L.		26												
Tuscumbia and Decatur.		44												
Utica and Schenectady.	78		78	3,161,688	40,500									
Vermont and Mass.	69		69						795,239			10	122	
Vermont Central.	121		69	In progress.									29	
Vicksburg and Clinton.		46											45	
Western	117	117		7,975,452	67,700								7	
West Stockbridge	2		2	41,515	15,000			83	1,332,068			8	101	
Worcester and Nashua.	45		45											
Wrightsv. York & Gettys.		13						48					50a51	
Whitehaven and Wilkes.		20												
Williamsport and Elmira		26												
Westchester Branch.		10												
West Feliciana.		24												
Winchester and Potomac.		32		509,415	15,919									
Wilmington and Weldon		163												
Westminster Branch.		10												
Western and Atlantic.		100		In progress.										
York and Maryland Line.		21												

AMERICAN RAILROAD JOURNAL.

Saturday, October 27, 1849.

Railroad to the Pacific.

We must find an apology in the continued discussion of this subject, in its great importance, in the prospect of speedy action in relation to it, and in the erroneous views which so generally prevail in reference to it—its route, mode of construction and management, costs, and the office it is to perform as a commercial agent between the Atlantic and Pacific oceans. Our only object in the discussion is to develop the best plan by which this great object can be effected. We have already laid before the public what we believe to be the best plan for the construction of this work. But we do not profess infallibility. If we are wrong, the sooner our mistakes are corrected the better. If right, the sooner our views are adopted by others, the sooner will the work be accomplished. To make the discussion of this subject of any profit, we must subject it to the ordinary rules of common sense. Otherwise we can have no confidence in the results of our decisions, and shall be much more likely to be led astray than guided right; and we feel that we cannot render a more useful service to this great project, than in inducing the community to make use of the same common sense in its examination, as they do in the ordinary affairs of life. We shall then feel some confidence that we are really making progress toward the end we are all seeking to accomplish.

In every undertaking of magnitude, business men have a regular way of going to work. The first question to be settled by them is the practicability of the scheme proposed. The next, will the ends to be accomplished justify the outlay? Then come the subordinate ones relating to the manner in which the work shall be executed. All these questions as they arise, are referred for a decision to persons competent to decide upon the matters submitted to them. If questions arise in engineering, the opinion of a competent engineer is taken as conclusive upon these points. Those involving financial skill are referred to men of mercantile experience. Each are referred to the decision of men who, from their training and experience, are better qualified than all others to decide correctly upon the matters submitted to them. Such is the method of proceeding which is absolutely necessary to success, and to secure the confidence of sensible men; and just in proportion to the magnitude of the work, should be the care with which these indispensable rules should be strictly followed.

This is the ground which we have taken from the first in relation to the subject of a railway to the Pacific. We have been the more anxious to insist upon this plain common sense way of proceeding, for the reason that in the schemes which have heretofore been pressed upon public attention, not the slightest regard has been paid to principles of so necessary and obvious an application. On the other hand, the plan which has received very strong demonstrations of popular favor, we mean that of Mr. Whitney, claims it as its chief merit, and to which, marvellous as it may seem, we think it mainly indebted for success, that it puts all these rules at defiance, and admits that an adherence to them would be fatal to the work! A most extraordinary recommendation truly. Mr. Whitney says it will not do to wait till surveys are completed before the work is commenced, for if this is done, the land which must furnish the means to build the road will be sold, and the work consequently rendered impossible. Infinitely absurd as are such arguments as

these, we think that they are the very ones that have chiefly recommended it to popular favor.

Mr. Whitney had no experience in railway affairs nor in engineering to correct or control his theories. Having committed himself to his project, all the vast intermediate unknown between the Mississippi and the Pacific, became mere plastic material in his hands, to be moulded into any shape to suit his fancy. He saw no obstacles, because he did not appreciate what constituted such. He affirmed just what he chose in relation to the capacity of railways, as commercial agents, from the want of practical knowledge of their operation.—Enthusiastic to the highest degree, he infused others with his own spirit, and his untiring energy placed his views before almost every person in the country. The subject of a railway to the Pacific is one of universal interest. Every person gave a willing ear to his propositions, and their apparent plausibility secured their favorable reception. In his scheme everything was sunshine. There were no obstacles—no delay. No money was required then to build the road. This scheme was the Philosopher Stone, which transformed the land into gold as he proceeded on his course; and in return for what was worthless, gave us what was of inestimable value, and a surplus of wealth, where nothing existed before. In addition to this, over this new channel, the commerce of the world was to flow, which we were to tax to an extent sufficient to realize in this country a perfect millennium of wealth and luxury. What wonder is it, that people, before they had time for reflection, should be carried away and blinded by such dazzling prospects?

It is a law of nature that what acquires the most immediate popularity possesses the least lasting excellence. A subject becomes popular because its most attractive features only are presented to the public. In any sensible project for a railway to the Pacific, arguments in favor of it are met at every step with opposing arguments, which though not insurmountable, nor entirely fatal to such a scheme, are such as will divide, to a certain extent, public opinion, and bring the opposing views so nearly into a state of equilibrium, as to preclude any very great enthusiasm in favor of it, and render progress in carrying out the work very slow. The rapid popularity of Mr. Whitney's plan arose from its very imperfections. If he had presented the plan which is ultimately destined to succeed, and candidly admitted all the difficulties to be overcome, and that with the very best plan, and with all the means of the country at command, the success of the work might be problematical, his plan would have made but little noise in the world. If further, he had in the outset submitted his scheme to the opinion of a competent engineer, and followed his advice, only two persons in the country would have ever heard of it.

The "Boston plan" is never destined to make any headway, and therefore requires but little notice.—It is we think as absurd as that of Mr. Whitney; and as his has exhausted public credulity, nothing remains upon which this scheme can gain a footing. We are at loss, however, to see how any men should be willing to hazard a reputation they really possess in railway affairs, in connecting themselves with a scheme so utterly absurd and so universally repudiated.

Railroad Across the Isthmus.

We are happy to learn that the Panama railroad company have put under contract that portion of their railroad across the Isthmus which lies between the Chagres river and the bay of Panama, about 21

miles, the whole distance from Panama to Limon Bay being 46 miles. The contractors are Messrs. Totten and Trantwine, whose proposals are most favorable, and who possess the great recommendation of having been employed for the last four or five years in the territories of New Grenada, in constructing a canal ninety miles long, to connect two branches of the Magdalena river. They have accomplished this work entirely with native labor, and though at first encountering great difficulty, they have succeeded in training the natives into expert workmen, and will be able to carry over with them a large force. Thoroughly acclimated, and with a perfect knowledge of the character and habits of the people, they will begin the railroad with the advantage of all the experience acquired in constructing the canal. Their bid was the lowest received, which is good evidence that the difficulties are not so great as has been supposed by those less acquainted with the character and resources of the country. They expect to break ground about the 1st of December ensuing. We also learn that the government of New Grenada has determined to give the company additional facilities, so as to ensure the route by the way of Panama, being the first opened, and the leading communication between the two seas.—*N. Y. Jour. of Com.*

Indiana.

Terre Haute and Richmond Railroad.—This road, in addition to its local objects, is one of the links in the great line of railway running through Indiana, which is to unite the lines from Boston, New York, Philadelphia, and Baltimore, and the Mississippi roads from these various points, will all form a junction in the State of Ohio; and from thence will proceed in one grand trunk link to the Mississippi. The link which the proposed road is to supply, extends from Indianapolis to Terre Haute, a distance of 72 miles. It occupies the most direct line, and we understand, the most favorable route between these two places, which must protect it against merely rival routes. It runs through one of the finest parts of Indiana, and in addition to local trade and travel, which we think will be sufficient to give it a good business, its through travel must be immense; and we know of no new undertaking of the kind that offers greater inducements for the investment of capital.

The following extract from the report of the president shows the present condition of the work.

The estimate shown by this report, reduces the cost of construction on the whole line from Terre Haute to Indianapolis, ready for the superstructure to less than \$318,000. That part of the line between Terre Haute and Greencastle, embracing a distance of 32 miles, was in pursuance of your further orders, let to contractors in December last, at an aggregate sum of near \$145,000, being about 6 per cent. below the estimate of the engineer. The contractors immediately commenced operations, and have continued to prosecute their work with much energy. This entire division is now more than half completed, and I have no doubt, that most of it will be finished by the first of December next, so as to be ready for the superstructure early next spring. I have received several propositions from good and responsible contractors for contracts on that part of the line from Greencastle to Indianapolis. They propose taking the work at the engineer's estimate, and in payment to receive 40 per cent. in stock of the company and 60 per cent. in cash. Permit me to recommend that 15 or 20 miles of the road be put under contract, as early as practicable, and I think there will be sufficient stock taken to justify putting the whole line under contract next winter. There has been about \$185,000 stock subscribed, and the county Commissioners of Vigo county have agreed to subscribe \$50,000 in stock of the company at their next meeting, which takes place early in September. This, together with the increased subscriptions we may reasonably anticipate as the work

progresses, I think will enable us to proceed rapidly with the work.

It affords me pleasure to state, that a large majority of the persons through whose lands the road has been located have freely given the right of way to the company without compensation.

Sites for depots, very conveniently situated, including ground for machine shops, have been obtained at Terre Haute and Indianapolis at a cost of only one thousand dollars. The order passed at a former meeting of the board, allowing interest on all payments made on stock, from the date of payment until the road is finished to Greencastle, has given another inducement to subscribers, and will, I think promote the interest of the company.

The following recapitulation, [from the report of the engineer, shows the leading physical characteristics of the road:

Length of line from Terre Haute to Indianapolis.....	72.2 miles
Total cost of grubbing, grading and bridging.....	\$317,188 00
Average per mile.....	\$4,393 18
Length of curved line, radius 5730 feet.....	6.62 miles.
Length of curved line, radius 2365 feet.....	4.14 miles.
Length of curved line, radius 1910 feet.....	1.93 miles.
Length of straight line.....	59.51 miles.
Level grade line.....	5.93 miles.
Inclined from 0 to 5 feet per mile..	4.24 miles.
Inclined from 5 to 10 ".....	5.52 miles.
Inclined from 10 to 15 ".....	5.85 miles.
Inclined from 15 to 20 ".....	3.50 miles.
Inclined from 20 to 25 ".....	3.95 miles.
Inclined from 25 to 30 ".....	4.27 miles.
Inclined from 30 to 35 ".....	5.22 miles.
Inclined from 35 to 40 ".....	33.68 miles.

ESTIMATES OF COST OF THE ROAD.

In the estimates here presented for the iron rail, the sizes both of the flat and T rail, are the same as are now used on the Madison and Indianapolis road. Although an estimate is given of each kind of track, I feel very sure that the amount of business that your road will command, will justify, as a matter of economy, an expenditure for a substantial heavy bar. The experience of the country is the best guide, as to the particular pattern to be used.

The prices here given of each bar, have been kindly furnished me by Mr. Jackson, the Secretary of the Madison company. They include all expenses necessary to deliver the iron at Indianapolis.

The estimate for one mile of flat bar will be, for timber, ballasting spikes and all mechanical work..... \$2,250 00
26½ tons iron, at \$58 per ton..... 2,117 00

Track complete, per mile.....	\$4,367 00
The estimate per mile of track with T bar, weighing 60 lbs. to the yard will be—	
For timber, ballasting, &c., comple..	\$1,810 00
Chairs and spikes.....	491 00
105½ tons of iron at \$49.....	5,169 50

Track complete per mile..... \$7,470 50

TOTAL COST OF ROAD.

The total cost of the road, completed and ready for locomotive power from Terre Haute to Indianapolis, will be as follows:

Flat Bar Track.

Grubbing, grading, and bridging.....	\$317,188 00
72.2 miles track complete at \$4,367 00 per mile.....	315,297 40

Total..... \$632,485 40
Average per mile..... \$8,760 18

For T Rail.

Grubbing grading and bridging.....	\$317,188 00
72.2 miles track complete at 7,470 50 per mile.....	539,370 10

Total..... \$856,558 10
Average per mile..... \$11,863 68

If the total cost of the road as above estimated for T rail be added 5 per cent. on the cost of grading and superstructure, for contingencies and superintendence..... 22,493 00

And a probable sum for engines, cars, depots, shops, turnouts, &c., of....	140,000 00
The total cost of the road, and equipments, ready for transportation will be.....	\$1,018,051 10
Average per mile.....	\$14,112 89

In relation to the business of the road the Engineer says—

"Your road is connected at Indianapolis, with the Madison and Indianapolis road, already completed, and the Bellefontaine, Peru and Lafayette; on all of which operations have commenced with energy, and give assurance of speedy completion. These roads leading to the north, east and south, must of necessity throw an immense business upon your road, which affords the only western outlet.—At Terre Haute, the road is intersected by the Wabash and Erie Canal, and will at no distant day be continued from this point to the city of St. Louis. At this time organized companies are completing the connecting links of this entire chain, from the Atlantic to the Mississippi, with the exception of that from Terre Haute to St. Louis. Such a line when completed, as it must be in a few years, will be unrivalled in importance, and as a sure and profitable investment for capital, none can be devised that will surpass it.

In addition to all these sources of revenue to your road, the inexhaustible coal fields and fine stone quarries through which it passes, will of themselves afford an immense business. Along the line of the road for about 15 miles, the quality and character of the coal have been fully tested, and found to be superior bituminous coal. Every facility is afforded in the position of the coal, for cheap and successful working. The eastern line of this coal field is about 45 miles from Indianapolis, which will allow it to be delivered at that end of the road, at a price much below that usually paid at points where it is now in general use. The Madison company at this time charge 5 cents per bushel for transporting it from the Ohio river to Indianapolis, a distance of 86 miles, and were it not for ascending the plane of the "Madison Hill" they could probably transport it that distance for 4 or 4½ cents per bushel. Your company could then could transport it 50 miles for about 3 cents per bushel. This would enable the company to furnish coal at Indianapolis at 6 or 7 cents, allowing the prices now charged for working and handling it, at the different pits along the line. It could then be taken to Madison for about 12 cents, which is about the average price now paid for coal at that point. In this view, it appears conclusive to me, that the transportation of coal on your road, for the supply of the country south, east and north, must of itself create a heavy and profitable business.

The stone quarries in Putnam county furnish sand and limestone of such superior quality that the transportation of this item to Indianapolis must afford a business of some importance to the company, and greatly benefit the city. Taking into consideration all the sources of revenue enumerated, I hazard nothing in saying, that, with a substantial, well constructed road, your company cannot fail to realize profits equal to that of any other company in the west.

For the American Railroad Journal.

Boston, October 24, 1849.

In common with most of the citizens of the United States, I feel no little interest in the question of building a railroad from some central point within the United States to the Pacific Ocean. I have endeavored to read and examine the various plans that have been proposed and presented to the public. I can say in truth and candor, that not one, among all that have been suggested, appears to be so feasible as the one proposed by you. Your mode of electing directors, and of procuring officers is coincident with my own views, and I think the one that will be ultimately adopted if the general government should decide to legislate at all on the subject.

The plan proposed by Mr. Whitney grasps at too much land. In this country, such a scheme can never be carried out. When first proposed, the idea

was so novel and interesting, that most persons favored it, and perhaps the Legislatures of a majority of the States passed resolutions recommending its favorable consideration by Congress; the time, however, (if ever it existed,) when that body would pass such a bill has gone by.

The plan proposed by Mr. Degrande, of this city, and sometimes very modestly called by him "The Boston Plan," and sometimes called "my plan"—that is, Mr. Degrande's plan, is also too absurd for consideration. and were it not for the fact, that some few persons sanction it so far as to allow their names to be used in connection with it, the plan would really be beneath criticism.

The presumption that Congress would create an act of incorporation of one hundred millions of dollars, and his whole plan is based on this, indicates a total ignorance of public sentiment, and the history of Congressional proceedings. Mr. Whitney saw that the magnitude of his scheme was such as this would obviously be an objection to intrusting it to one individual; and hence he conceived the idea of associating with himself one or more persons from each State; this was objected to at once by members of Congress, on the ground that they would not under any circumstances give the appropriation if made, the character of an act of incorporation, and here he was obliged from necessity, and not from choice, to bring his bill before Congress in his individual name; indeed it is a "fixed fact" that Congress will not create acts of incorporation, and certainly not one of the magnitude proposed by Mr. Degrande, who ought to have known this ere he presumed to thrust before the public a plan which persons abroad might suppose from its

"Boston Plan," to be sanctioned by the business men of this city; then I will venture to say, that not ten judicious, intelligent business men of Boston approve it. But let this pass.

In contemplating a great work or improvement of this character, or in fact of any other, two important primary questions are to be considered.—First is it practicable? Second, can the means be obtained in the manner proposed? In answer to the last question proposed, I would say that Congress will not create the act of incorporation. The fact is obvious to every intelligent man, and needs no comment; and secondly, if they would, in my humble judgment, consent to issue ninety eight millions of scrip on the terms, and for the purposes proposed, and especially, to be controlled by a directory chosen in the manner intimated. If the directors were chosen in the manner proposed by Mr. Degrande, the whole scheme would soon be a practical speculative mammoth machine for purposes quite different from those contemplated by the people of the country. This you clearly intimated in your remarks on this plan in a recent number of your paper. And secondly, is it practicable to make the road in five years, the time suggested by Mr. Degrande?

This is taken for granted, not only before a survey of a route is made; but prior to the extinguishment of Mt. India, till which exists to a large portion of the territory through which it is proposed to carry the road; and in fact, before we have any knowledge whatever of hundreds of miles intermediate, except that we know that a few companies, by suffering great hardships, and by dint of extraordinary exertion, have passed across the country to the Pacific. The knowledge they acquired of the route, however, for the building of a railroad is of but little value. We simply know that the mountains, valleys and rivers are passable, that mules and

men can cross them; but this affords but slight evidence of the practicability of the route for a railroad. Who knows that it will not be necessary to tunnel the mountains for miles? Of course no one. It may be necessary to cut channels of this character, which in the nature of things, will require more than twice the time in which he proposes to build the whole road.

But for arguments sake, we will presume that the most eligible route is selected and properly surveyed, and the ninety-eight millions of script issued, and a company duly organized, and the distinguished author of "my plan" elected President of the same, and his self constituted committee numbered among the board of directors; and even then, the company could not it invested with all the power possessed by the autocrat of all the Russians, and with all the gold in the Bank of England at their command make it in five years, (the term proposed for making the road the whole distance, say two thousand miles) the first five miles from San Francisco.—It would not come within the scope of human power to make freemen excavate a railroad track within reach of the glittering dust that is now, and that will in all probability for years to come, attract so much attention: at least, men could not be made to work for less than from \$10 to \$20, and perhaps \$30 per day; and even at these prices, it is very doubtful whether you could get common Irish laborers to work steadily and faithfully, and if they would work, who would undertake to control them? Take 5,000 Irishmen, or common laborers, give them the lowest price named, \$10 per day, set them at work excavating a line of railroad in a new country, surrounded by a reckless mining population, where gambling and drinking are practised *ad libitum*, and where the same class of laborers are making and digging gold from five dollars to one thousand dollars per day, and I think even the originator of "my plan" would shrink from the responsibility; and yet this is precisely what some one must encounter, before the plan is carried out as contemplated.

In what I have said, I do not wish to be understood as opposing the making of a railroad to the Pacific. I believe one will be made, and as soon as it can be in the nature of things, and consistent with the other interests of the country. Neither have I any objection to Mr. Degrand proposing his plan, or one even more impracticable if possible; but I think I have a right to object to his calling his plan 'the Boston Plan,' when there is no evidence that half a dozen men of standing and character approve it. Great pains have been taken to thrust this plan before the general government, and prominent men of the country endure the imposing declaration, that it was not a plan, but the plan of the city of Boston.

Massachusetts having rather taken the lead in the railway enterprises of the country, and having had more experience in building them, and better success perhaps in their management, than the citizens of any other part of the Union, it would be natural for the whole country to give much consideration to any plan suggested by the citizens of Boston for the accomplishment of so important a work as a railroad to the Pacific—consequently, Bostonians must naturally have a wish to be consulted before being pledged for any plan.

Mr. Degrand exhibited a good deal of enterprise, at an early day, in the progress of our railroads, and in promoting the building of a railway from this city to Albany. He is deserving of much credit, and much is awarded to him. He was untiring

in his efforts, and he undoubtedly worked as hard as any man in our community. But he is evidently out of his depth, when he proposes to build a railroad to the Pacific; and I am quite certain that he and his "committee" will be driven to the necessity of seeking fame and of making a fortune through some other channel. As I before said, I of course have no right nor disposition to object to Mr. Degrand and his 'committee' suggesting any plan for a railroad to San Francisco, that they please, but I do object to the plan which he suggested, being called the Boston Plan, and for reasons I have above stated.

SUBSCRIBER.

RAILWAY TO THE PACIFIC.

We cheerfully give place to the following communication, though we cannot, for reasons stated at length in former numbers of our paper, agree with the writer in his plan.

Providence, R. I., October 23, 1849.

H. V. Poor, Esq.,

Dear Sir: Several months since an original manuscript touching the practicability of a railroad to the Pacific was placed in my hands by a gentleman in whose judgment we feel confidence. I then desired to give you a copy for perusal, thorough investigation, and insertion in the American Railroad Journal; but have been prevented hitherto by reason of the unwillingness of the author to make it known. He has finally been prevailed upon to allow his plan to appear in the Providence Journal, a copy of which please find enclosed.

The feasibility of this plan, in the opinion of engineers and statesmen in New England, so far as I have been able to learn, takes precedence of all others, and throws them into the shade.

In haste thine

ANOTHER PLAN FOR CONSTRUCTING A RAILROAD TO THE PACIFIC.

Now that the public mind is fast approaching the point of decisive action on this important project, suggestions going to give a right direction to such action may be in order. Already we have plans from New York, by Whitney, from Missouri, by Benton, from Massachusetts, by Degrand, and why not one from Rhode Island? Benton would have it entirely a Government work, while Whitney, and Degrand would do it wholly, by private companies, operating with capital furnished them by Government, assuming a capacity for the application of the means superior to the Government.

Between the two extremes we take our position, fully impressed with the decided advantages to be secured by separating the work into two grand divisions: The first to be carried forward as a Government work, by funds derived from the issue of Government stocks. The second, to be accomplished by an incorporated and responsible company operating with their own capital, and not by that drawn from the Government.

Division First, to embrace, Topographical and Geological exploration and survey; Location of line and securing the right of way; The grading of the road, its masonry and bridges; Construction of ample wharves and docks at its terminus on the Pacific. Second Division, to embrace, Laying the track and completing the superstructure; The entire equipment, future maintenance, management and operation of the road, agreeable to the conditions and stipulations of the Government's transfer to the company.

From St. Louis to San Francisco is about 2300 miles. State governments cooperating with Incorporated Companies in about seventeen years have

built in this country more than 5,000 miles of railroad, at an average cost of \$24,500 per mile; and is it extravagant to assume that the Government of the United States, cooperating with a strong company, can finish in eight years 2300 miles, at an average of \$30,000 per mile? making the total cost of first construction, say seventy millions of dollars. Our plan would divide this expenditure about equally between the Government and the Company.

It will be asked, can such a company be formed without injury to the other business interests of the country? We think it can. Let the next Congress meet this project, and by the necessary legislation determine upon the completion of the first division at the earliest day. At the same session let them indicate the terms on which a transfer of the graded line to the right kind of a company would be made. Let those terms be liberal. It would have it in its power to say—"the entire improvements contemplated in the Government Division of the Road shall be transferred and made over to a company that can furnish satisfactory assurance of the fulfillment of its contract for the following considerations, viz: That within six months after the grading is done a locomotive shall traverse the whole line. That the Road shall always be kept in good order, and managed after the model of the best road, and according to the restrictions of the contract. That the company transport forever, free of charge mails, materials, and men belonging to, or employed in, the service of the Government; thus securing between the Atlantic and Pacific States a penny post, and a permanent reduction in the yearly expenses of Government fully equal to the interest of its investment. The insecurity inherent in the institutions of Europe, is inducing her capitalists to seek safe and permanent investments in this country, and here would be presented such a field as they are anxiously looking for, so that instead of an injurious diversion of capital from the channels of the present business of the country, we have secured a great accession to it.

Again, upon the existing Railroads, built at a cost of about \$130,000,000, all of which would be directly benefited by the opening of this, there will result an increase of value of not less than 5 per cent., making about six millions, which would probably equal the amount of stock taken by the capitalists in the Atlantic States.

It is difficult to calculate what amount of stock would be taken by the citizens of the Pacific territories. We know the road to be universally a pet, a favorite project; and it is not improbable that it would become a sort of Savings Bank to the accumulators of gold in those Western mines.

It is not apparent that Congress would have it in its power to insure the formation of a right sort of a company by the liberal nature of its terms?—And Government could well afford to be liberal; for, let it be remembered, there is no disposal of the adjacent lands required on this plan, until after their value has been enhanced by the completion of the work; and it is admitted by all who have examined the subject, that this increase in value, will exceed the whole cost of the road.

Government should send into the field next winter its commissioners, with ample instructions and means to put the entire line under contract at the earliest day. We anticipate the organization of the company within twelve months of that time, or before fifty miles of the line are in readiness for the track, when they should begin to operate from the terminus towards the centre, following close upon the forces at work on the Government division, whose supplies would come over the track thus laid.

A detachment in the Government service composed of land surveyors and receivers, under a Commissioner, should keep pace with the progress of the track, in laying out into sections and quarter sections, the fertile lands on either side, extending back some thirty miles, and bringing the same into market. Thus at a very early stage in the progress of our plan, would a compensating revenue begin to flow back to the Treasury, constantly increasing with the progress of the work, up to its completion; and exceeding the amount of the Government expenditure from 75 to 100 per cent.

Railroad Engineers will perceive that the line of separation between the two divisions are drawn exactly where, in the progress of railroad building, there is a natural division growing out of a change in the character of the work, of the operatives who perform it. This being the case, the forces on each could operate at the same time without interference or competition. It is common to let the work of the first division to one class of contractors, and that of the superstructure to another.

There are two elements not sufficiently appreciated by most that enter largely into the cost of this work; they are interest on the cost, and depreciation in the value of the first constructions, before the line is completed and becomes productive.

Twenty-five years are contemplated in the bill reported last winter for carrying out the plan submitted by Whitney. Annual interest on his expenditures will amount to no less than 25,000,000, and he puts depreciation at \$15,000,000, making an aggregate loss of 40,000,000; the most of which would be saved if 8 instead of 25 years were only allowed.

From this it will be seen, that having regard to the strictest economy in expenses, we must adopt that plan which secures the most speedy completion.

Why then should a plan any longer divide the public attention that fails to meet the daily increasing wants of our citizens; that has not even economy in construction to recommend it; that furnishes no assurance whatever of securing the object; that is strongly marked with features of a speculative character. And why should another plan be advocated that requires an increase of our national debt of 98,000,000, and a donation from Government besides of a half of all the lands adjacent to the Road, when here is a plan that guarantees the completion of the project in the shortest practicable time by the joint efforts of two powerful agencies, each in vigorous operation, for the same result; a plan that while using some 35,000,000 of government funds creates and enlarges the sources of the national revenue to more than double that amount; a plan that secures a national location guided by an enlarged view of the wants of the whole country, and not sectional; as would probably be the case if given into the hands of Northern or Southern capitalists.—What kind of a location are we sure of on Whitney's plan? Is there no risk where the quality of the land adjacent is to effect the value of the locators property; that the strict commercial wants of the country will often yield to the lateral attraction of a range of fertile lands or of gold placers?

Our plan not only secures a national location, but the Road is retained just long enough in the hands of Government to be stamped with all the features of a great national work, and is then passed over to the company, who are to perfect and fill up the outline.

Thus we have sought to develop a mode of operations at once simple and comprehensive, devoid of all complexity, by which this great trunk can be constructed, in the shortest practicable time, and at the

least expense and trouble to Government, and in the right place. Here no chance for extended political patronage is given, because Government ceases to have any part in the management of the Road after the grading is completed. TALBOT.

Cop Waste.

CLEAN COP WASTE, suitable for cleaning Railroad, Steamboat and Stationary Engines, constantly an hand and for sale by

KENNEDY & GELSTON,
54 Pine St., New York.
3m

October 27, 1849,

GREAT NORTHERN & SOUTHERN MAIL ROUTE. From New York to Charleston, S. C. daily, via Philadelphia, Baltimore, Washington City, Richmond, Petersburg, Weldon and Wilmington, N. C.

Travellers by this route, leaving New York at 4 p. m., Philadelphia at 10 p. m., and Baltimore at 6 a. m., proceed without delay at any point on the route, arriving at Richmond, Va., in a day, and at Charleston, S. C., in two and half days from New York. Through tickets from New York to Charleston, \$20 00

" " " Baltimore to Richmond, 7 00
" " " Petersburg, 7 50

For tickets to Richmond and Petersburg, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Ticket Office, Pratt Street, Baltimore. STOCKTON & FALLS.
October, 1849.

DEAN, PACKARD & MILLS, MANUFACTURERS OF ALL KINDS OF RAILROAD CARS,

SUCH AS

PASSENGER, FREIGHT AND CRANK CARS,

— ALSO —

SNOW PLOUGHS AND ENGINE TENDERS
OF VARIOUS KINDS.

CAR WHEELS AND AXLES fitted and furnished at short notice; also, STEEL SPRINGS of various kinds; and

SHAFTING FOR FACTORIES.

The above may be had at order at our Car Factory,

REUEL DEAN,
ELIJAH PACKARD, } SPRINGFIELD, MASS.
ISAAC MILLS, } 1y48

TO CONTRACTORS.

SEALED PROPOSALS will be received at the office of the James River and Kanawha Company in Richmond, until the 23d day of November next, for the construction of a stone dam across James River at Maiden's Adventure Falls, twenty-eight miles above Richmond.

The dam will be about 1100 feet long and 10 feet high.

The work will be paid for in current Bank notes.— Besides the usual reservation of 20 per cent. on the monthly estimates, the Contractor will be required to give ample security, satisfactory to the Board of Directors, for the completion of the work at the time and in the manner specified in the contract.

Plans of the above work will be exhibited, and specifications thereof delivered to the contractor, at the Company's office in Richmond, by the 5th day of November next, on application to the Secretary of the Company.

WALTER GWYN,
Chief Engineer J. R. & K Co.

Richmond, October 17, 1849.

To Contractors.

Office of the Columbus and Lake Erie R.R. Co. }
Newark, Ohio, October 17, 1849. }

SEALED Proposals will be received at this Office until the 30th day of November next, for laying 60 miles track with H rail (58 to 60 lbs. per yard weight). The work to be commenced immediately, or not later than December 15th.

Also for furnishing the necessary cast iron chairs for the same.

Proposals are invited for cash payments, and also for the whole or any part in the 7 per cent. bonds of the company. Any information desired will be furnished on application to the undersigned.

GEO. W. PENNEY,
Superintendent, etc,

To Contractors.

VIRGINIA & TENNESSEE RAILROAD CO.

PROPOSALS will be received until the 22d day of November next, at the Railroad Office, in Lynchburg, for the Graduation and Masonry of 60 miles of the Virginia and Tennessee Railroad, extending from Lynchburg to Salem. The line traverses a region remarkable for its healthy climate and productive soil.

The character of the work is heavy and worthy the attention of contractors; and it will be let in sections of one mile or larger amounts, to suit the wishes of contractors and interest of the company.

The bids must be addressed to the undersigned, and none will be accepted without satisfactory evidence of the responsibility of the bidder.

By order of the Board of Directors.

CHARLES F. M. GARNETT,
Chief Engineer.

Coal.

CUMBERLAND SEMI-BITUMINOUS COAL

superior quality for Locomotives, for sale by

H. B. TEBBETTS,

No. 54 Pine St., New York.

May 12, 1849.

1m19

Railroad Iron.

THE Undersigned have on hand, ready for immediate delivery, various patterns of Iron Rails, of best English make, and manufactured in conformity with special specifications.

They offer also to import and contract to deliver ahead—on favorable terms.

DAVIS, BROOKS, & CO.,
68 Broad street.

New York, Oct. 11, 1849,

Drawings and Patterns of the most approved Rail—and specifications of quality and make of same, are on hand at their office, for examination of parties who may desire to inspect the same. D., B. & Co.
Oct. 11, 1849.

MANUFACTURE OF PATENT WIRE ROPE and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers, etc, by

JOHN A. ROEBLING, Civil Engineer,
Pittsburgh, Pa.

These Ropes are now in successful operation on the planes of the Portage railroad in Pennsylvania, on the Public Slips, on Ferries, and in Mines. The first rope put upon Plane No. 3, Portage railroad, has now run four seasons, and is still in good condition.

To the Proprietors of Rolling Mills and Iron Works.

THE Undersigned—Proprietors of Townsend's Furnace and Machine Shop, Albany—are extensively engaged in the manufacture of Machinery and fixtures for Iron, and Copper Rolling Mills, and Iron Works. Having paid particular attention to the manufacture of *Rolls* (Rollers), both *chilled* and *dry-sand*, they feel confident that they can execute orders for such castings in a satisfactory manner. And to give assurance of this, they beg leave to refer to the following named persons, proprietors and managers of some of the most extensive rolling mills in the country, viz: Jno. F. Winslow, J. Tuckerman, H. Burden, W. Burt, J. & J. Rogers, Saltus & Co., J. B. Bailey, L. G. B. Cannon, Hawkins & Atwater, etc., etc.

FRANKLIN TOWNSEND & CO.

Albany, August 18, 1849,

Norwich Car Factory,

NORWICH, CONNECTICUT,

At the head of navigation on the River Thames, and on the line of the Norwich & Worcester Railroad, established for the manufacture of

RAILROAD CARS,

OF EVERY DESCRIPTION, VIZ:

PASSENGER, FREIGHT AND HAND CARS,

ALSO, VARIOUS KINDS OF

ENGINE TENDERS AND SNOW PLOUGHS,

TRUCKS, WHEELS & AXLES

Furnished and fitted at short notice.

Orders executed with promptness and despatch.

Any communication addressed to

JAMES D. MOWRY,

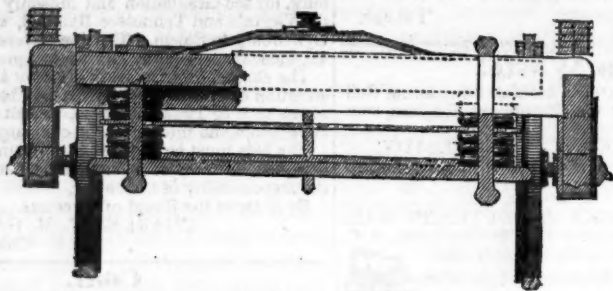
General Agent,

Norwich, Conn.,

Will meet with immediate attention.

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FULLER'S PATENT INDIA RUBBER CAR SPRINGS.



RAILROAD COMPANIES are cautioned, before purchasing Springs, to examine the actual patents and judge for themselves.

Persons, under the Title of the New England Car Company, seeking fraudulently to invade Fuller's rights have put forth so many statements for the purpose of misleading the public, that an enumeration of some facts is absolutely necessary, for the purpose of putting persons interested upon their guard.

Fuller's patent is for the application of Discs of India-rubber with Metal Plates, for forming Springs for Railway Cars and Carriages—either one disc and two plates, or ten discs and plates, or any other number, are equally covered by the patent. Fuller is not bound to the use of short discs—he may use long discs and plates.

Ray's patent is simply and wholly the forming of air tight rubber cylinders, with hoops or bands round the outside, and the combination of elasticity of India rubber, with the elasticity of atmospheric air confined in the cylinder, and in no part of his patent is he authorized to use the form of spring which he is now fraudulently supplying to Railroad Companies. Such springs are direct and positive infringements of the very letter of Fuller's patent.

Fuller's patent is dated October, 1845, Ray's patent, August, 1848.

The spring patented by Ray never has been put in operation, and never can be made useful for Railroad cars.

A mere experiment, even if made, it is well known does not prove an invention; and it is ridiculous for such parties to hope to mislead the Presidents and Superintendents of Railroad companies, by claiming the invention because Ray alleges he made an experiment—which Fuller had made before him—had actually brought into working order, and obtained a patent for—and this too before Mr. Ray states he made his experiment—and that experiment not claimed to have been applied to a car or carriage.

Besides, the invention could not have been developed until India rubber, properly Vulcanised, could be made of a sufficient thickness. In the United States the art of vulcanising rubber by steam heat, (by which

means only can a body of rubber having any considerable thickness be vulcanised,) was not introduced until after the grant by the American government of the patent for springs to Fuller—whereas the process of vulcanising rubber by steam heat was invented in England about three years previously, and was used by Fuller there. This fact refutes entirely the claim of invention put forth by Mr. Ray, and proves the impossibility of his pretensions being true.

Fuller was the first and only inventor of the spring. A Mr. Dorr, whose connection with Mr. Goodyear is well known in this country, applied in England to Mr. Fuller, after he had published and patented his invention, and introduced another party for the purpose of obtaining the agency for the United States. They were furnished with a complete set of drawings and models, and with instructions to make arrangements for the supply of material of American manufacture—from that hour to the present not a single communication has been received from them. Some of these identical models have been traced into the hands of parties now seeking to invade Fuller's rights, and who have exhibited them as specimens of their own invention.

After this, the conveyance was made by Goodyear to certain parties here for the use for railroad springs of what he calls his Metallic rubber. Comment is unnecessary.

There are 5 or 6 different processes for the manufacture of vulcanised rubber, patented by as many different parties, some here, some in England, either of which would probably make good springs.

A large and powerful company has been organized under Fuller's patent, the particulars of which shall be given very shortly.

An action has been commenced against one railroad company for infringement; and all other parties will assuredly be prosecuted if they continue farther to infringe upon Fuller's patent.

W. C. FULLER,

The only persons authorized to supply the Springs are
G. M. KNEVITT, 38 Broadway, N. York,
General Agent for the U. S.: and
JAS. LEE & Co., 18 India Wharf, Boston.
JOHN THORNLEY, Chestnut st., Philad.

Steam Boiler Explosions.

THE Subscriber having been appointed sole Agent for Faber's Magnetic Water Gauge, is now ready to supply the trade, and also individuals with this celebrated instrument. Besides the greatest safety from explosion resulting from its use, it is a thorough check against careless stoking and feeding. In marine engines it will regulate the exact quantity required in the "blow off." Pamphlets containing full information, can be had free on application to the Agent,
JOSEPH P. PIRSSON,
Civil Engineer, 5 Wall st.

Railroad Iron.

1600 Tons, weighing 60½ lbs. per yard.
185 " " 57½ "
580 " " 53 "

of the latest and most approved patterns. For sale by
BOORMAN, JOHNSTON & CO.,
119 Greenwich street.
New York, Oct. 13, 1849.

Railroad Instruments.

THEODOLITES, TRANSIT COMPASSES, and Levels, with Fraunhoffer's Munich Glasses, Surveyor's Compasses, Chains, Drawing Instruments, Barometers, etc., all of the best quality and workmanship, for sale at unusually low prices, by
E. & G. W. BLUNT,
No. 179 Water St., cor. Burling Slip.
New York, May 19, 1849.

CORROSIVE SUBLIMATE.

THIS article now extensively used for the preservation of timber, is manufactured and for sale by POWERS & WEIGHTMAN, manufacturing Chemists, Philadelphia.
Jan. 20, 1849.

RAILROAD

India-rubber Springs.

IF any Railroad Company or other party desires it, the NEW ENGLAND CAR COMPANY will furnish India-rubber Car Springs made in the form of washers, with metallic plates interposed between the layers, or in any other form in which they can be made; in all cases guaranteeing the right to use the same against any and all other pretended rights or claims whatsoever.

F. M. Ray, 98 Broadway, New York.
E. CRANE, 99 State Street, Boston.

May 24, 1849.

Devlan's Machinery Oil.

THE Subscribers, Agents for P. S. Devlan & Co's "Patent Lubricating Oil"—price 80c. per gallon 4 mos. or 3 per cent off for cash.

We refer to the following certificate of Messrs. Norris Brothers, in whose works, any one by calling can see the oil in use and judge for themselves.

NORRIS' LOCOMOTIVE WORKS.
Philadelphia, April 2, 1849.

We have been using throughout our Works, during the last six weeks, "Devlan's Lubricating Oil," and so far as we have been able to judge from its use, we think it preferable to the sperm oil generally used, for both heavy and light bearings.

NORRIS, BROTHERS.

For sale by ALLEN & NEEDLES,
22 & 23 South Wharves,
Philadelphia Pa.

14tf

NORRIS' LOCOMOTIVE WORKS,

SCHENECTADY, N. Y.

THESE Works are in full operation in Manufacturing to order, Locomotive Steam Engines & Tenders, of the best principle and construction of material, using wrought iron heavy frames with pedestals welded thereto, and all parts of the engine made of the best wrought iron, except cylinders, pumps and boxes—obtaining greater durability, and carrying less weight over the road, than engines constructed of cast iron.

Wrought Iron Tires made any required size, and Tire Bars bent and welded with dispatch.

Chilled Wheels for Cars, Trucks and Tenders, made from the toughest iron.

Driving and Tender and Car Wheels fitted to Axles with Brass Boxes and Springs, and Railroad Machinery generally. Manufactured and for sale by

E. S. NORRIS.

April 11, 1849.

Engine and Car Works, PORTLAND, MAINE.

THE PORTLAND COMPANY, Incorporated August 8th, 1846, with a capital of \$250,000, have erected their extensive Works upon the deep water of Portland Harbor, and receive and transport, to and from their works direct, to and from vessels of any class.

They now manufacture to order, and deliver upon the Railroads running in each direction from the city, or on shipboard as wanted, Locomotive, Stationary, or Steam Boat Engines; Passenger, Mail, Freight, Earth and Hand Cars; Railway Frogs, Switches, Chairs and Castings; and every other description of Machinery.

HORACE FELTON,
Superintendent.

JAMES C. CHURCHILL,
General Agent and Clerk.

ENGINEERS.

Arrowsmith, A. T.,

Buckfield Branch Railroad, Buckfield, Me.

Banks, C. W.,

Civil Engineer, Vicksburg, Miss.

Berrien, John M.,

Michigan Central Railroad, Marshall, Mich.

Buckland, George,

Troy and Greenbush Railroad.

Clement, Wm. H.,

Little Miami Railroad, Cincinnati, Ohio.

Davidson, M. O.,

Eckhart Mines, Alleghany Co., Maryland.

TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine, and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; hollow Pistons for Pumps of Steam Engines etc. Manufactured and for sale by

MORRIS, TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut streets,
Philadelphia.

The New York Iron Bridge Co.

LATELY KNOWN AS

Rider's Patent Iron Bridge Co.

THE Company which has hitherto furnished these Bridges, under the patent granted to the late Nathaniel Rider, deceased, have become satisfied that all the principles embraced in their construction, are included in a previous patent, granted in the year 1839, to Col. Stephen H. Long, of U. S. Engineers, and by him designated as "Long's Suspension Bridges," and have therefore made an arrangement with Col. Long, by which they have secured the exclusive right to make and vend these Bridges throughout the whole United States.

The only change consequent upon the new arrangement will be found in the name and style of the Company. The parties composing it being the same, the construction of the Bridges will be essentially the same. August 4th, 1849.

M. M. White, Agent,

No. 74 Broadway, New York.

Fisk, Charles B.,
Cumberland and Ohio Canal, Washington, D. C.

Felton, S. M.,
Fitchburgh Railroad, Boston, Mass.

Floyd-Jones, Charles,
South Oyster Bay, L. I.

Gzowski, Mr.,
St. Lawrence & Atlantic Railroad, Montreal, Canada.

Gilbert, Wm. B.,
Rutland and Burlington Railroad, Rutland, Vt.

Grant, James H.,
Nashville and Chattanooga R. R., Nashville, Tenn.

Harry, P.,
Binghamton, New York.

Holcomb, F. P.,
Southwestern Railroad, Macon, Ga.

Higgins, B.,
Mansfield and Sandusky Railroad, Sandusky City, O.

Johnson, Edwin F.,
New York and Boston Railroad, Middletown Ct.

Latrobe, B. H.,
Baltimore and Ohio Railroad, Baltimore, Md.

Miller, J. F.,
Worcester and Nashua Railroad, Worcester, Mass.

Morris, Elwood,
Schuylkill Navigation, Schuylkill Haven, Pa.

Morton, A. C.,
Atlantic and St. Lawrence Railroad, Portland, Me.

McRae, John,
South Carolina Railroad, Charleston, S. C.

Nott, Samuel,
Lawrence and Manchester Railroad, Boston,

Reynolds, L. O.,
Central Railroad, Savannah, Ga.

Roberts, Solomon W.,
Ohio and Pennsylvania Railroad, Pittsburgh, Pa.

Robinson, James P.,
Androscoggin & Kennebec Railroad, Waterville, Me.

Schlatter, Charles L.,
Northern Railroad (Ogdensburg), Malone, N. Y.

Stark, George.,
Bost., Con. and Mont. R. R., Meredith Bridge, N. H.

Steele, J. Dutton,
Pottstown, Pa.

Trimble, Isaac R.,
Philad., Wil. & Baltimore Railroad, Wilmington, Del.

Tinkham, A. W.,
United States Fort, Bucksport, Me.

Thomson, J. Edgar.,
Pennsylvania (Central) Railroad, Philadelphia.

Whipple, S.,
Civil Engineer and Bridge Builder, Utica, N. Y.

Williams, E. P.,
Auburn and Schenectady Railroad, Auburn, N. Y.

Williams, Charles H.,
Milwaukee, Wisconsin.

BUSINESS CARDS.

Alfred W. Craven,
Chief Engineer Croton Aqueduct, New York.

Walter R. Johnson,
CIVIL AND MINING ENGINEER AND ATTORNEY FOR PATENTS. Office and Laboratory, F St., opposite the Patent office, Washington, D. C.

Dudley B. Fuller & Co.,
IRON COMMISSION MERCHANTS,
No. 139 GREENWICH STREET,
NEW YORK.

Cruse & Burke,
Civil Engineers, Architects and Surveyors,
Office, New York State Institution of Civil Engineers,
STATE HALL, ALBANY., N. Y.

Drawings, specifications and surveys accurately executed. Pupils instructed theoretically and practically at a moderate premium.
May 26, 1849.

Eaton, Gilbert & Co.,
Railroad Car, Coach and Omnibus Builders,
TROY, N. Y.

Hudson River Foundry,
THOMAS & COLLINS,
130 Quay Street, Albany.

To Railroad & Navigation Cos.

Mr. M. BUTT HEWSON, *Civil Engineer*, offers his services to Companies about to carry out the surveys or works of a line of Navigation or Railroad. He can give satisfactory references in New York City as to his professional qualifications; and will therefore merely refer here to the fact of his having been engaged for upwards of two years conducting important Public Works for the British Government.

Communications will find Mr. Hewson at the office of the Railroad Journal, 54 Wall Street, New York.

J. T. Hodge,
Eagle River P. O. Lake Superior.

James Laurie, Civil Engineer,
No. 23 RAILROAD EXCHANGE, BOSTON, MASS.
Railroad Routes explored and surveyed. Estimates, Plans and Specifications furnished for Dams, Bridges, Wharves, and all Engineering Structures.
October 14, 1848. 6m*

James Herron, Civil Engineer,
OF THE UNITED STATES NAVY YARD,
PENSACOLA, FLORIDA.,
PATENTEE OF THE

HERRON RAILWAY TRACK.

Models of this Track, on the most improved plans, may be seen at the Engineer's office of the New York and Erie Railroad.

To Railroad Companies.
—WROUGHT IRON WHEELS—
SAFETY AND ECONOMY.

NORRIS' LOCOMOTIVE WORKS,
SCHENECTADY, NEW YORK,
Are Manufacturing Wrought Iron Driving, Truck, Tender, and Car Wheels—made from the best American Iron. Address
May 16, 1849. E. S. NORRIS.

Manning & Lee,
GENERAL COMMISSION MERCHANTS,
NO. 51 EXCHANGE PLACE,
BALTIMORE.

Agents for Avalon Railroad Iron and Nail Works. Maryland Mining Company's Cumberland Coal 'CED'—'Potomac' and other good brands of Pig Iron.

Samuel Kimber & Co.,
COMMISSION MERCHANTS
WILLOW ST. WHARVES, PHILADELPHIA.
AGENTS for the sale of Charcoal and Anthracite Pig Iron, Hammered Railroad Car and Locomotive Axles, Force Pumps of the most approved construction for Railroad Water Stations and Hydraulic Rams, etc., etc.
July, 27, 1849.

IRON.

Railroad Iron.

THE Undersigned offer for sale 3000 Tons Railroad Iron at a fixed price, to be made of any required ordinary section, and of approved stamp.

They are generally prepared to contract for the delivery of Railroad Iron, Pig, Bar and Sheet Iron—or to take orders for the same—all of favorite brands, and on the usual terms.

ILLIUS & MAKIN.

March 29 1849.

41 Broad street.

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Glendon Refined Iron.

Round Iron, Band Iron, Hoop Iron,
Square " Flat " Scroll "

Axles, Locomotive Tyres,
Manufactured at the Glendon Mills, East Boston, for
sale by **GEORGE GARDNER & CO.,**
5 Liberty Square, Boston, Mass.
Sept. 15, 1849. 3m37

PATENT HAMMERED RAILROAD, SHIP & BOAT SPIKES.—The Albany Iron Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes from 2 to 12 inches in length, and of any form of head From the excellence of the material always used in their manufacture, and their very general use for rail roads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscribers at the works will be promptly executed.

JOHN F. WINSLOW, Agent.
Albany Iron and Nail Works, Troy, N. Y.
The above Spikes may be had at factory prices, of Erastus Corning & Co Albany; Meritt & Co., New York; E. Pratt & Br & Co., Ed. Imere, Md.

LAP—WELDED WROUGHT IRON TUBES

FOR
TUBULAR BOILERS,
FROM 1 1/2 TO 8 INCHES DIAMETER.

These are the ONLY Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers

THOMAS PROSSER,
Patentee.

28 Platt street, New York.

Railroad Iron.

THE UNDERSIGNED ARE PREPARED TO contract for the delivery of English Railroad Iron of favorite brands, during the Spring. They also receive orders for the importation of Pig, Bar, Sheet, etc. Iron.

THOMAS B. SANDS & CO.,
22 South William street,
February 3, 1849. New York.

Iron Store.

THE Subscribers, having the selling agency of the following named Rolling Mills, viz: Norristown, Rough and Ready, Kensington, Trindellphia, Pottsgrove and Thorndale, can supply Railroad Companies, Merchants and others, at the wholesale mill prices for bars of all sizes, sheets cut to order as large as 58 in. diameter; Railroad Iron, domestic and foreign; Locomotive tire welded to given size; Chairs and Spikes; Iron for shafting, locomotive and general machinery purposes; Cast, Shear, Blister and Spring Steel; Boiler rivets; Copper; Pig iron, etc., etc.

MORRIS, JONES & CO.,
Iron Merchants,
Schuylkill 7th and Market Sts., Philadelphia.
August 16, 1849. ly33

Railroad Iron.

THE MOUNT SAVAGE IRON WORKS, Alleghany county, Maryland, having recently passed into the hands of new proprietors, are now prepared, with increased facilities, to execute orders for any of the various patterns of Railroad Iron. Communications addressed to either of the subscribers will have prompt attention.

J. F. WINSLOW, President
Troy, N. Y.
ERASTUS CORNING, Albany.
WARREN DELANO, Jr., N. Y.
JOHN M. FORBES, Boston.
ENOCH PRATT, Baltimore, Md.

November 6, 1848.

Railroad Iron.

THE SUBSCRIBERS ARE PREPARED TO take orders for Railroad Iron to be made at their Phoenix Iron Works, situated on the Schuylkill River, near this city, and at their Safe Harbor Iron Works, situated in Lancaster County, on the Susquehanna river; which two establishments are now turning out upwards of 1800 tons of finished rails per month.

Companies desirous of contracting will be promptly supplied with rails of any required pattern, and of the very best quality.

REEVES, BUCK & CO.,
45 North Water St., Philadelphia.

March 15, 1849.

Monument Foundry.

A. & W. DENMEAD & SON,
Corner of North and Monument Sts.,—Baltimore,

HAVING THEIR

IRON FOUNDRY AND MACHINE SHOP

In complete operation, are prepared to execute faithfully and promptly, orders for Locomotive or Stationary Steam Engines, Woolen, Cotton, Flour, Rice, Sugar Grist, or Saw Mills,

Slide, Hand or Chuck Lathes, Machinery for cutting all kinds of Gearing, Hydraulic, Tobacco and other Presses, Car and Locomotive patent Ring Wheels, warranted,

Bridge and Mill Castings of every description, Gas and Water Pipes of all sizes, warranted, Railroad Wheels with best faggotted axle, furnished and fitted up for use, complete

Being provided with Heavy Lathes for Boring and Turning Screws, Cylinders, etc., we can furnish them of any pitch, length or pattern.

Old Machinery Renewed or Repaired—and Estimates for Work in any part of the United States furnished at short notice.
June 8, 1849.

Iron Wire.

REFINED IRON WIRE OF ALL KINDS,
Card, Reed, Cotton-flyer, Annealed, Broom, Buckle, and Spring Wire. Also all kinds of Round, Flat or Oval Wire, best adapted to various machine purposes, annealed and tempered, straightened and cut any length, manufactured and sold by

ICHABOD WASHBURN.

Worcester, Mass., May 25, 1849.

American and Foreign Iron.**FOR SALE,**

300 Tons A 1, Iron Dale Foundry Iron.
100 " 1, " " "
100 " 2, " " "
100 " " Forge " "
400 " Wilkesbarre " "
100 " "Roaring Run" Foundry Iron.
300 " Fort " "
50 " Catocin " "
250 " Chikiswalungo " "
50 " "Columbia" "chilling" iron, a very superior article for car wheels.
75 " "Columbia" refined boiler blooms.
30 " 1 x 1/2 Slit iron.
50 " Best Penna. boiler iron.
50 " "Puddled" "
50 " Bagnall & Sons refined bar iron.
50 " Common bar iron.

Locomotive and other boiler iron furnished to order.

GOODHUE & CO.,
New York. 64 South street

American Pig, Bloom and Boiler Iron.

HENRY THOMPSON & SON,
No 57 South Gay St., Baltimore, Md.,
Offer for sale, *Hot Blast Charcoal Pig Iron* made at the *Catoctin* (Maryland), and *Taylor* (Virginia), *Furnaces*; *Cold Blast Charcoal Pig Iron* from the *Cloverdale* and *Catawba*, Va., *Furnaces*, suitable for *Wheels* or *Machinery* requiring *extra strength*; also *Boiler* and *Flue Iron* from the mills of *Edge & Hillis* in Delaware, and *best quality Boiler Blooms* made from *Cold Blast Pig Iron* at the *Shenandoah Works*, Va. The productions of the above establishments can always be had at the lowest market prices for approved paper.

American Pig Iron of other brands, and *Rolled* and *Hammered Bar Iron* furnished at lowest prices. Agents for *Watson's Perth Amboy Fire Bricks*, and *Rich & Cos. New York Salamander Iron Chests*.
Baltimore, June 14, 1849. 6 mos

LAP-WELDED WROUGHT IRON TUBES
for Tubular Boilers, from 1 1/2 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,
12 Platt street, New York.

JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

Railroad Iron.

THE TRENTON IRON COMPANY ARE NOW turning out one thousand tons of rails per month, at their works at Trenton, N. J. They are prepared to enter into contract to furnish rails of any pattern, and of the very best quality, made exclusively from the famous Andover iron. The position of the works on the Delaware river, the Delaware and Raritan canal, and the Camden and Amboy railroad, enables them to ship rails at all seasons of the year. Apply to

COOPER & HEWITT, Agents.
17 Burling Slip, New York.

October 30, 1848.

Pig and Bloom Iron.

THE SUBSCRIBERS ARE AGENTS for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,
Vine Street Wharf, Philadelphia.

Iron.

THE SUBSCRIBERS having resumed the agency of the New-Jersey Iron Company, are prepared to execute orders for the different kinds and sizes of Iron usually made at the works of the company, and offer for sale on advantageous terms—

150 tons No. 1 Boonton Foundry Pig Iron.
100 " No. 2 do. do. do.
300 " Nos. 2 & 3 Forge do. do.
100 " No. 2 Glendon do. do.
140 " Nos. 2 & 3 Lehigh Crane do. do.
100 " No. 1 Pompton Charcoal do.
100 " New-Jersey Blooms
50 " New-Jersey Faggoting Iron, for shafts

Best Bars, 1/2 to 4 inch by 1/2 to 1 inch thick.

Do do Rounds and Squares, 1/2 to 3 inch.

Rounds and Squares, 3-16 to 1 inch.

Half Rounds, 1/2 to 1 in. Ovals & Half Ovals 1/2 to 1 1/2 in.

Bands, 1 1/2 to 4 inch. Hoops, 1/2 to 2 inch.

Trunk Hoops, 1/2 to 1 1/2 in. Horse Shoe & Nut Iron.

DUDLEY B. FULLER & CO., 139 Greenwich-st. and 85 Broad-st.

WILLIAM JESSOP & SONS' CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving from their manufactory.

PARK WORKS, SHEFFIELD,

Double Refined Cast Steel—square, flat and octagon. Best warranted Cast Steel—square, flat and octagon. Best double and single Shear Steel—warranted.

Machinery Steel—round.

Best and 2d gy. Sheet Steel—for saws and other purposes.

German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.

Genuine "Sykes" L Blister Steel.

Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favorable terms by

WM. JESSOP & SONS,

Also by their Agents—

Curtis & Hand, 47 Commerce street, Philadelphia.

Alex'r Fullerton & Co., 119 Milk street, Boston.

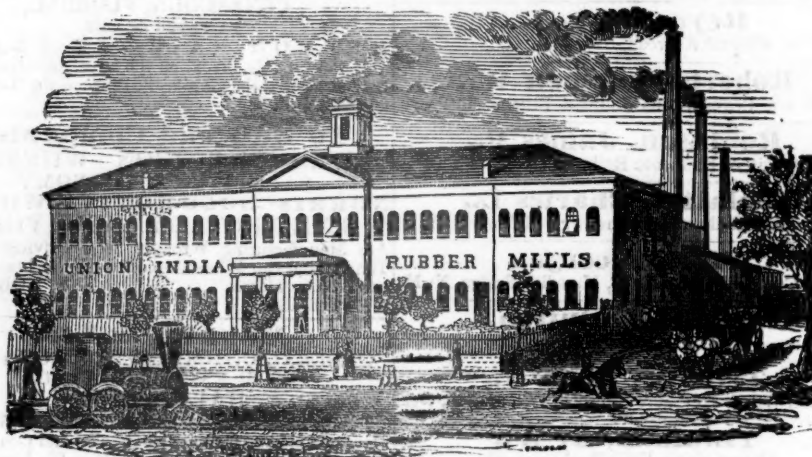
Stickney & Beatty, South Charles street, Baltimore.

May 6, 1848.

SPRING STEEL FOR LOCOMOTIVES, TENDERS AND CARS.—The subscriber is engaged in manufacturing spring steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address **J. F. WINSLOW, Agent,** Albany Iron and Nail Works.

American Cast Steel.

THE ADIRONDAC STEEL MANUFACTURING CO. is now producing, from American iron, at their works at Jersey City, N.J., Cast Steel of extraordinary quality, and is prepared to supply orders for the same at prices below that of the imported article of like quality. Consumers will find it to their interest to give this a trial. Orders for all sizes of hammered cast steel, directed as above, will meet with prompt attention.
May 28, 1849.

HEAD QUARTERS FOR RUBBER GOODS.**The Union India Rubber Company,**

MANUFACTURERS AND DEALERS IN EVERY VARIETY OF

GOODYEAR'S PATENT METALLIC RUBBER FABRICS,

Which they offer on the most liberal terms at their Warehouse,

NO. 19 NASSAU STREET, NEW YORK.

Articles which this Company has the exclusive right to make comprise in part

Beds,
Pillows,
Cushions,
Caps,
Tents,
Bottles,
Tubs,
Caps,
Pants,

Overcoats,
Leggins,
Syringes,
Canteens,
Buoys,
Maps,
Sheet Gum,
Tarpaulins,
Life Jackets,

Life Preservers,
Boat Floats,
Souwesters,
Gun Cases,
Portable Boats,
Horse Fenders,
Water Tanks,
Army Goods,
Navy Goods,

Mail Bags,
Breast Pumps,
Saddle Bags,
Clothing of all kinds,
Carriage Cloth, assor.
Hospital Sheeting,
Mattress Covers,
Bathing Caps,
Baptismal Pants,

Camp Blankets,
Travelling Bags,
Wading Boots,
Horse Covers,
Piano Forte Covers,
Railroad Gum,
Hose, all kinds,
Shower Baths,
Chest Expanders.

Together with all new applications of the Patent Rubber, which with Boots and Shoes, Packing, Machine Belting, Suspenders, Gloves and Mittens, Tobacco Wallets, Balls, Baby Jumpers, Elastic Bands, etc., etc., will be sold to the Trade at Factory prices.

* * * All orders for special articles to be manufactured, should be accompanied with full descriptions and drawings.

October 20, 1849.

Iron Safes.

FIRE and Thief-proof Iron Safes, for Merchants, Banks and Jewelers use. The subscriber manufactures and has constantly on hand, a large assortment of Iron Safes, of the most approved construction, which he offers at much lower rates than any other manufacturer. These Safes are made of the strongest materials, in the best manner, and warranted entirely fire proof and free from dampness. Western merchants and the public generally are invited to call and examine them at the store of E. Corning & Co., sole agents, John Townsend, Esq., or at the manufactory.

Each safe furnished with a thief-detector lock, of the best construction. Other makers' Safes repaired, and new Keys and Locks furnished at the shortest notice.

H. W. COVERT,
cor. Steuben and Water sts. Albany.
August 24, 1848.

To Railroad Companies and Contractors.

FOR SALE.—Two Locomotive Engines and Tenders, at present in use on the Beaver Meadow Railroad, being too light for their coal trains, but well calculated for either gravel or light passenger trains.

They weigh, in running order, about 8 tons each—having one pair of driving wheels 4 feet diameter, 4 truck wheels 30 inches diameter, with cylinders 10 in. diameter, and 18 inches stroke of piston. Tenders on 4 wheels. Address **JAMES ROWLAND,**

Prest. Beaver Meadow Railroad & Coal Co.,
Philadelphia.
or, **L. CHAMBERLAIN, Sec'y,**
at Beaver Meadow, Pa.

May 19, 1849.

India-rubber for Railroad Cos.

RUBBER SPRINGS—Bearing and Buffer—Fulmer's Patent—Hose from 1 to 12 inches diameter. Suction Hose. Steam Packing—from 1-16 to 2 in. thick. Rubber and Gutta Percha Bands. These articles are all warranted to give satisfaction, made under Tyer & Helm's patent, issued January, 1849. No lead used in the composition. Will stand much higher heat than that called "Goodyear's," and is in all respects better than any in use. Proprietors of railroads do not be overcharged by pretenders.

HORACE H. DAY,
Warehouse 23 Courtlandt street.
New York, May 21, 1849.

NICOLL'S PATENT SAFETY SWITCH FOR Railroad Turnouts. This invention for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails; being laid down or removed without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two castings and two rails; the latter, even if much worn or used, not objectionable.

Working models of the Safety Switch may be seen at Messrs. Davenport, Bridges & Kirk's Cambridge Port, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained, on application to the Subscriber, Inventor and Patentee.

G. A. NICOLLS,
Reading, Pa.

To Steam Engine Builders.

THE Undersigned offer for sale, at less than half its cost, the following new machinery, calculated for an engine of 62 inches cylinder and 10 feet stroke, viz:

- 2 Wrought Iron Cranks, 60 inches from centre to centre.
- 1 Do. do. Connecting Rod Strap.
- 2 Do. do. Crank Pins.
- 1 Eccentric Strap.
- 1 Diagonal Link with Brasses.
- 1 Cast Iron Lever Beam (forked).

The above machinery was made at the West Point Foundry for the U. S. Steamer Missouri, without regard to expense, is all finished complete for putting together, and has never been used. Drawings of the cranks can be seen on application to

HENRY THOMPSON & SON,
No. 57 South Gay St., Baltimore, Md.
Sept. 12, 1849.

To Railroad Companies.

FOR SALE.—A Second-hand Locomotive Engine and Tender, of about 10 tons weight, in good order, and warranted to perform well. Any company wanting a cheap engine for a passenger or light burden train, will rarely meet with an opportunity so favorable as the present. The engine and tender are in perfect running order, and will be tested to the satisfaction of any one wishing to purchase. Price \$1,500.

Address **J. B. MOORHEAD,**
Frazer P.O., Chester county, Pa.

P.S.—The Engine can be seen by calling on H. Osmond & Co., Car-builders, Broad st., Philadelphia.
September 6, 1849.

Utica French Burr Mill Stone Manufactory.

THE undersigned, successors to Messrs. M. Hart and Son, in the above establishment, are now prepared to furnish French Burr Mill Stones of best quality and greatly improved workmanship and finish, together with best quality Bolting Cloths, Screen Wire, Hoisting Screws, Lighter Screws, Dannels and Mill Pecks.

Our Mr. Munson who is a practical Miller and Mill Wright, has recently invented and patented a machine on which the Mill Stone, after it is blocked up, is suspended upon its centre, where it is balanced in the course of filling up and finishing, instead of filling up the same without the means of testing the accuracy of its balance, leaving that to be done by the Mill Wright (as is usually the case) in hanging the Stone for actual use in the mill.

In order that the great superiority of Mill Stones finished in this way over all others, may be seen at once, a brief description of the machine and manner of finishing, is herewith given.

An important part of the machine is a heavy circular face plate, which is hung and balanced on a pivot or spindle. This plate has a flange near the outer edge on the under side, which rests on four friction rollers, so that when put in motion it runs perfectly smooth and true, around the opening or eye in the centre of the plate there is raised a flange which receives a hollow cone for forming the eye of the stone. This cone stands perfectly true with the plate, which plate is raised or lowered with a lighter screw. The manner of finishing a stone is by placing it upon the plate and centre it. The skirt is then coated with plaster and turned off perfectly true. The band is then put on hot. This band is wide, (with iron tubes fitted in for the pin holes) and extends above the edge of the stone in its unfinished state, leaving a vacancy between the eye and the band, which is to be filled up in the finishing. It is in this filling up and finishing of the stone that the balancing of it is performed. The means being here afforded as described of raising the stone free from the friction rollers and holding it suspended on the spindle or cock-head, and in that condition observing its balance when at rest or by application of motive power, communicating to the stone a swift motion, and in that condition by observing its balance it can very accurately be ascertained which side of the stone preponderates and where to apply the heaviest filling. This test is strictly observed until the necessary thickness is obtained. When the filling is completed a coat of plaster is put on and the top is nicely turned off, and the stone is complete. During the whole process the means are afforded of testing its balance both at rest and in motion. So that when the process of construction is complete and the mill stone finished, it is not only constructed otherwise favorable to the perfection of the stone, but the stone is also thoroughly balanced.

All of our stock will be selected and manufactured under the direction and superintendence of our Mr. Munson, which together with his long experience in the business will be a sufficient guaranty that the high reputation of this establishment will be fully sustained.

Confident that we can offer greater inducements to purchasers of Mill Stones, Bolting Cloths etc., than any other establishment in this country, a share of public patronage is respectfully solicited.

HART & MUNSON,
Utica N. Y. Sep. 1849.

PATENT INDIA RUBBER STEAM PACKING.

This article has been sufficiently long in use to prove its superiority over every other article. A complete assortment of the various descriptions and sizes suitable for Marine Locomotive and Stationary Engines; Boilers, Steam pipes, Ship joints; Valve stem and Piston rod boxes; Piston and Air Pumps; delivery and foot valves, &c., &c., constantly on hand, and for sale, in quantities to suit applicants by the manufacturer and patentee, who will give every information regarding its properties, mode of use, &c., &c., at the warehouse, 98 Broadway.

JOHN GREACEN, JR.,
Opposite Trinity Church Yard.

C. W. Bentley & Co.,

IRON Founders, Portable Steam Engine Builders and Boiler Makers, Corner Front and Plowman Sts., near Baltimore St. Bridge,
BALTIMORE, MARYLAND.

Their Engines are simple in their construction, compact and durable; they require no brick work in setting them, and occupying but a small space (a six horse power engine and boiler, standing on a cast iron plate of three by six feet.)

They also manufacture Major W. P. Williamson's new oscillating Engine; a superior article, combining cheapness and simplicity (one of which may be seen in operation at their shop.) Both of these engines are adapted to any purpose where power is required, and may be made of any capacity; and for economy in use of fuel are unsurpassed.

All kinds of machinery made to order. Steam Generators, Force Pumps, Wrought Iron Pipes and Fittings for Steam, Water, Gas, etc., constantly on hand,
Baltimore, June 6, 1849.

PHILADELPHIA CAR MANUFACTORY,

CORNER SCHUYLKILL 2D AND HAMILTON STS.,
SPRING GARDEN, PHILADELPHIA CO., PA.

Kimball & Gorton,

Having recently constructed the above works, are prepared to construct at short notice all kinds of

RAILROAD CARS, Viz:

Passenger Cars of all classes—Open and Covered Freight and Express Cars—Coal Cars—Hand Cars & Trucks of all descriptions.

They are also prepared to furnish Chilled Wheels of any pattern. Car Wheels & Axles fitted and furnished. Snow Ploughs and Tenders made to order. Steel and other Springs always on hand.

All orders will be filled at short notice, and upon as good terms as at any other establishment in the country.

Omnibuses from the Exchange run within one square of the manufactory every 10 minutes during the day.
Philadelphia, June 16, 1849. ly25

LAWRENCE'S ROSENDALE HYDRAULIC

Cement. This Cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by **JOHN W. LAWRENCE,**

142 Front-street, New York.
Orders for the above will be received and promptly attended to at this office. 32 ly.

Text Book of Mechanical Drawing,

FOR the use of SCHOOLS and SELF-INSTRUCTION, containing,

1st. A series of progressive practical problems in Geometry, with full explanations, couched in plain and simple terms; showing also the construction of the parallel ruler, plane scales and protractor.

2d. Examples for drawing plans, sections and elevations of Buildings and Machinery, the mode of drawing elevations from circular and polygonal plans, and the drawing of Roman and Grecian Mouldings.

3d. An introduction to Isometrical drawing, with 4 plates of examples.

4th. A treatise on Linear Perspective, with numerous examples and full explanations, rendering the study of the art easy and agreeable.

5th. Examples for the projection of shadows.

The whole illustrated with 50 STEEL PLATES.

Published by **WM. MINIFIE & CO.,**

114 Baltimore St., Baltimore, Md.

Price \$3. to be had of all the principal booksellers.

To Engineers and Surveyors.

E. BROWN AND SON Mathematical inst. makers No. 27 Fulton Slip, New York, make and keep for sale, Theodolites, Levelling inst., Levelling rods, Surveyors Compasses, and Chains, Cases of Mathematical drawing insts. various qualities, together with a general assortment of Ivory Scales and small insts. generally used by Engineers.

F. S. & S. A. Martine,

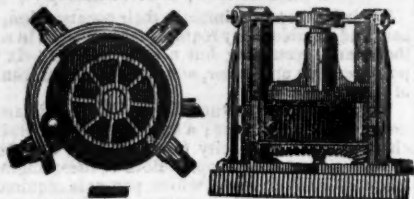
IMPORTERS and Jobbers of Railroad Car and Carriage Linings, Curtain materials, Plushes, etc.,
122 William Street,

Ferdinand S. Martine. N. York. Steph. A. Martine.

3-4 and 6-4 Worsted Damasks, 3-4 and 6-4 Union Damasks, Moreens, Rattinetts, Cloths, Silk and Cotton Velvets, English Bunting, Plushes, etc.

MACHINERY.

Henry Burden's Patent Revolving Shingling Machine.



THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phoenixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has given universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving in power; the entire saving of shingler's, or hammerman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll rounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery for making Spikes, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, Agent,
Troy Iron and Nail Factory, Troy, N. Y.

RAILROAD WHEELS.

CHILLED RAILROAD WHEELS.—THE UNDERSIGNED are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,
Willow St., below 13th,
Philadelphia, Pa.

CHILLED RAILROAD WHEELS.—THE UNDERSIGNED, the Original Inventor of the Plate Wheel with solid hub, is prepared to execute all orders for the same, promptly and faithfully, and solicits a share of the patronage for those kind of wheels which are now so much preferred, and which he originally produced after a large expenditure of time and money.

A. TIERS,
Point Pleasant Foundry.

He also offers to furnish Rolling Mill Castings, and other Mill Gearing, with promptness, having, he believes, the largest stock of such patterns to be found in the country.

A. T.
Kensington, Philadelphia Co.,
March 12, 1848.

ENGINE AND CAR WORKS.

DAVENPORT & BRIDGES,

HAVING ASSOCIATED WITH THEM

MR. LEWIS KIRK, OF READING, PA.,

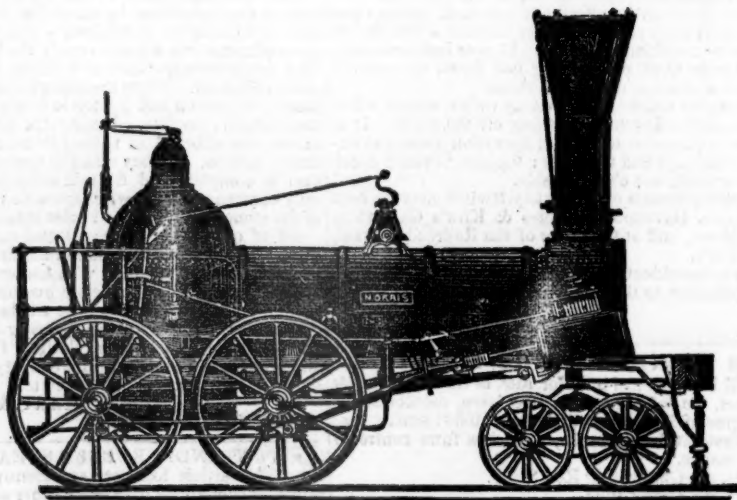
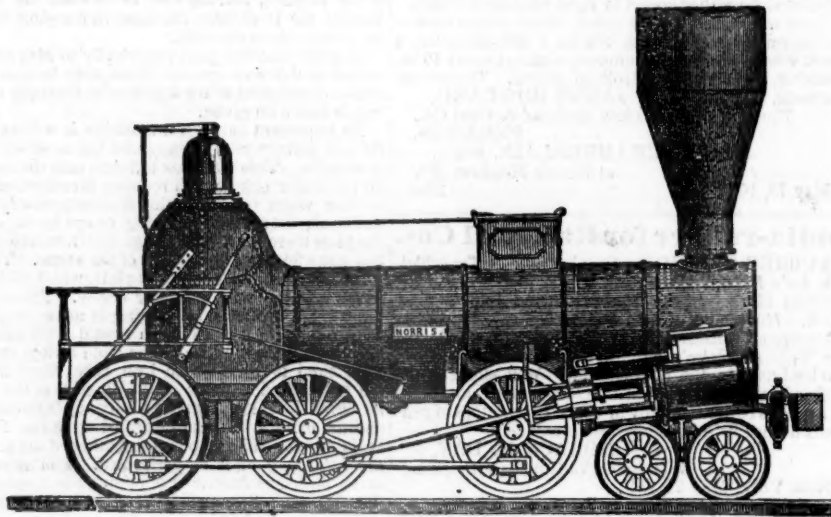
And recently enlarged their Establishment, (making it now the most extensive in the United States,) they are prepared to manufacture to order Locomotive Engines and Cars of every description. Stationary Engines, Steam Hammers, Boilers, and all kinds of Railroad Machinery. Also, Castings and Forge Irons of all kinds—including Chilled Wheels, Frogs, Chairs, Switches, Car Axles, and Locomotive Cranks, Connecting Rods, Steel Springs, Bolts, etc., etc. Orders from all parts of the country solicited for Engines and Cars, or any part or parts of the same. All orders will be furnished at short notice, and on as good terms as any manufactory in the country. Coaches pass our works every fifteen minutes during the day, from Brattle St., Boston.

DAVENPORT, BRIDGES & KIRK.

Cambridgeport, Mass., February 16th, 1849.

NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,



THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size. Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tyres are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS.